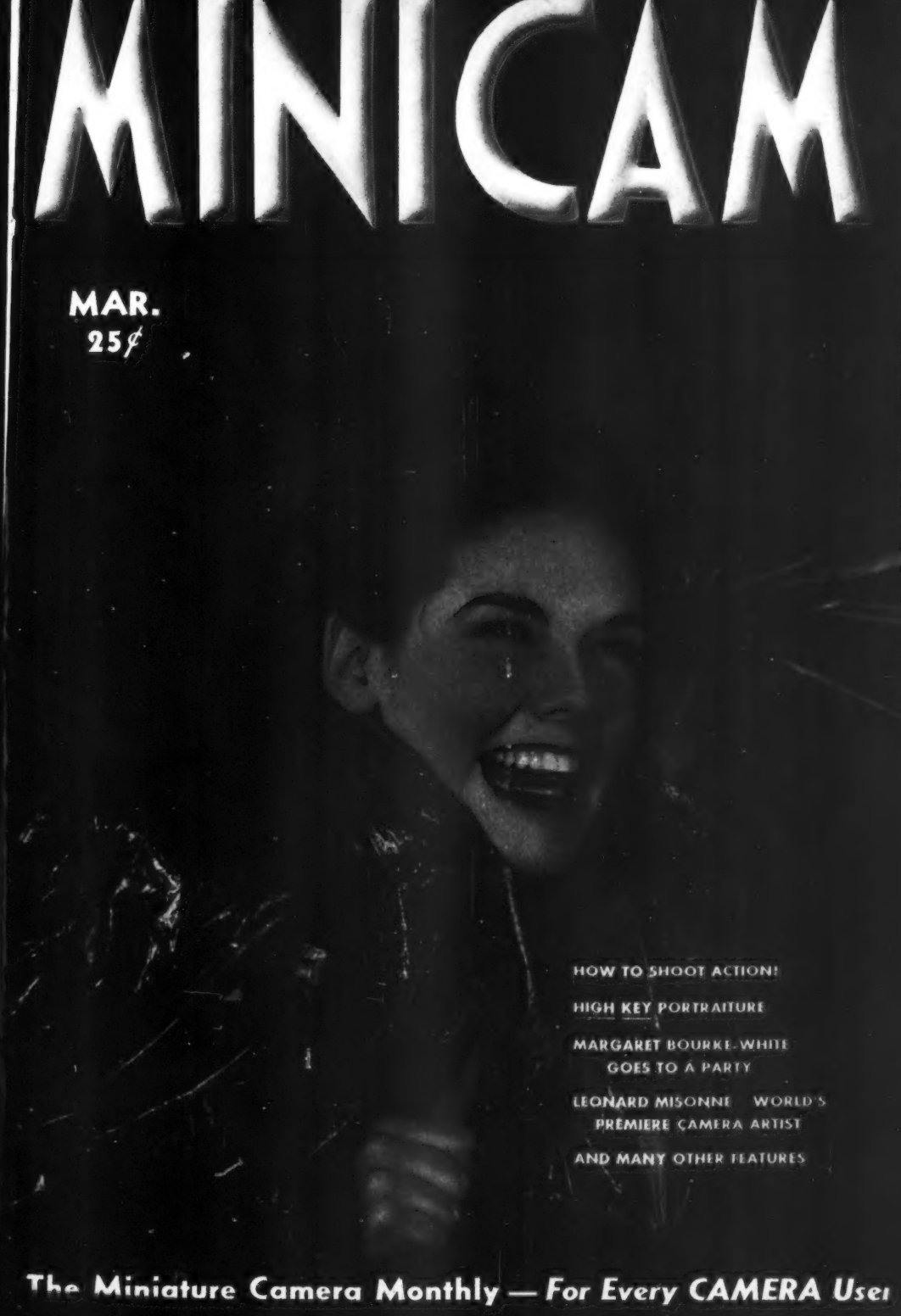


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HOW TO SHOOT ACTION!

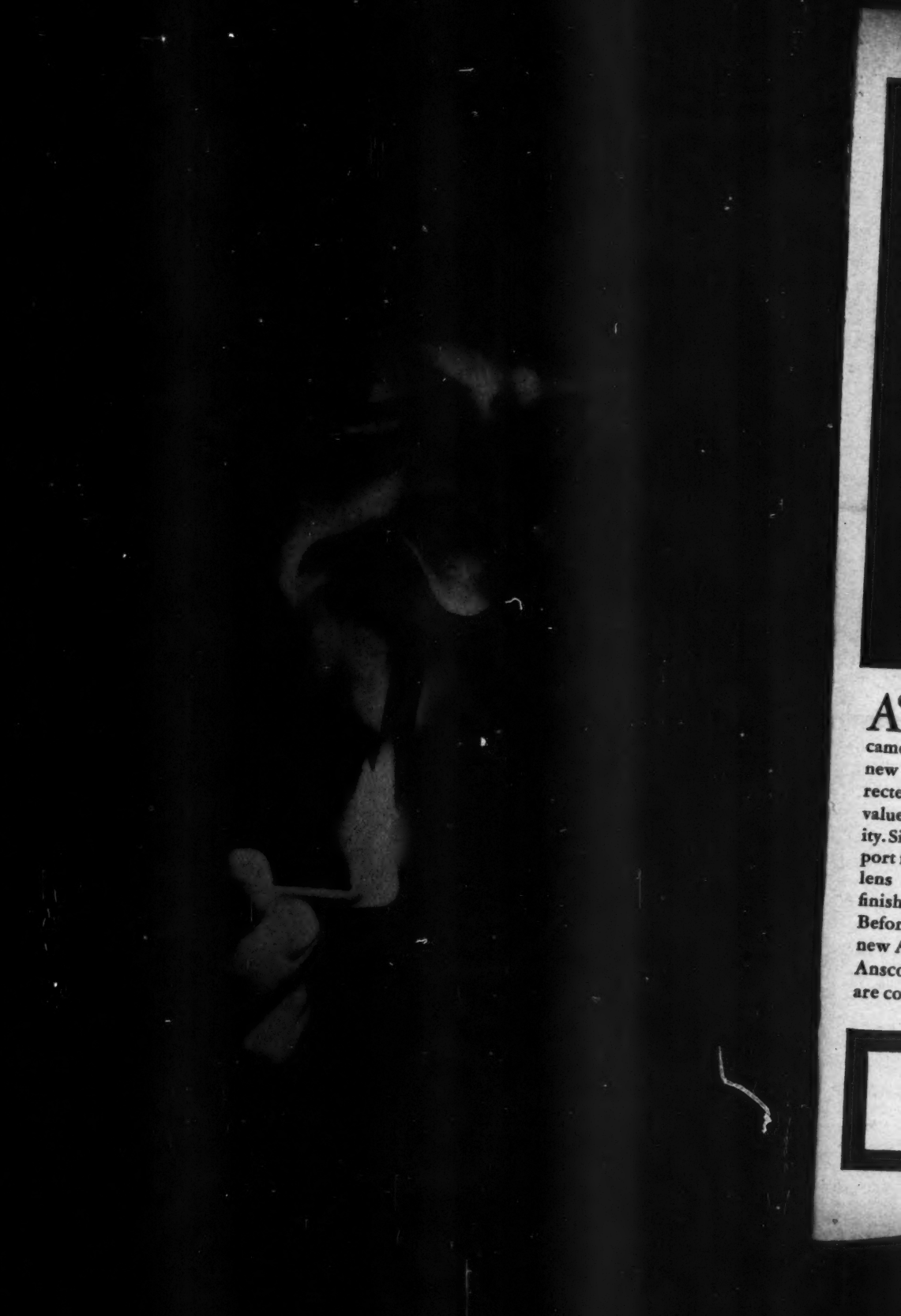
HIGH KEY PORTRAITURE

MARGARET BOURKE-WHITE
GOES TO A PARTY

LEONARD MISONNE WORLD'S
PREMIERE CAMERA ARTIST

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The Miniature Camera Monthly — For Every CAMERA User



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C O N T E N T S

Vol. 2

MARCH, 1939

No. 7

MINICAM MONTHLY WILL LANE, Editor

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"In Focus"

No Hemlock

Sirs:

I read Alexander King's very interesting article in the February issue, and am sure I will net considerable profit from it, but I must challenge some of his statements.

The portrait of Tommy Farr, he says, was incorrectly lighted. This I grant in regard to the true lighting when fighters are in the ring, but the photograph is intended to portray the imagination of Farr's opponent, and I assure you that Prizefighter Farr is far from being harmless. This photograph above all others of Farr has been featured through the newspapers of the country.

Another point I wish to mention is the phrase about hemlock, etc. To quote, "... as hammy as the hemlock against the sky". If you will

look at page 30 of the said issue you will find your hammy hemlock. Evidently the editors of MINICAM do not share this opinion.

EDWARD N. MULCAHY.

Medford, Mass.

- The tree mentioned is not hemlock, but pine. A second article by Alex King, which promises to be as interesting as the first, will appear in a forthcoming issue of MINICAM.—ED.

"Pure or Impure"

Sirs:

If Mr. Furist had said more about himself and less about Mr. Pictorialist, and vice versa, I'd have decided to follow one or the other of them, but after the first round of their most recent brawl, neither of them looked like a

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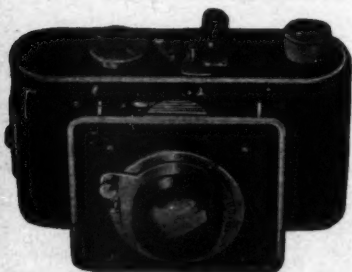
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fair-haired leader of the pee-pull. So listen to the voice of the rabble . . . Let me produce a picture by fair means or foul, (Pure or Pictorial) and I call in all the neighbors.

We of the mob are students. Prof. Purist is one of our teachers and Prof. Pictorialist is another. We like them both, but we'd like them better if they liked each other.

Both of these guys are good. There's no getting round it,—they're good, but just a wee-bit cracked. This leads to a sad state of affairs in the classroom. We simply plug our ears full of lens tissue and use our eyes. Still, those old boys can really turn out pictures. Pure or impure, they're "mighty purty."

EDWARD J. TAYLOR.

Muskogee, Okla.

"Move Over"

Sirs:

Re: the article in February edition, "Who is Purist?", is this a closed contest? If not, move over.

Who am I? The other day a candid snapshotter pointed to me and said, "Lookit the old guy's funny box with three lenses."

The Purist says, (page 83) "A camera in the hands of a purist will make the object he photographs live so vividly that it literally leaps from the page." Permit me to give forth said, "great belly guffaws." I've seen more form and substance on a thin dime than on any print.

Why does "purist" prefer monochrome scenes? Does the landscape or view before him contain no color? Or is purist not only one eyed, but also color blind? In closing may I, in brief, ask the purist to "Please swallow a tripod."

H. J. DAILEY.

Toronto, Canada.

Goes MINICAM One Better

Sirs:

MINICAM's article on "Viewing Filters" was fine, but I go it one better, by attaching the viewing glass directly to the viewing lens of my twin-lens reflex camera. A piece of blue cellophane will serve the same purpose. You can see exactly how much shadow detail you have got.

Another stunt that amazes my friends is the improvising of an ordinary table lamp as a tripod. The wire frame which supports the shades of many lamps has a screw on the top which fits the standard tripod socket on American cameras. Simply remove the lamp shade and screw on the camera. A photo-flood bulb may be placed in the lamp socket for the light source.

ALFRED J. MANNIX.

Portsmouth, N. H.

Yes, Out of Focus

Sirs:

Am wondering about the two pictures on page 8, January, "Converting $2\frac{1}{4} \times 3\frac{1}{4}$ " to 35 mm." by C. W. Grange. Evidently he is not familiar with the details of enlarging if boy and gal are same in both prints. Am I "out of focus," or did they change places for the enlargement? Someone should be told about such things—tsk! tsk!

A. E. MOORE.

Los Angeles, Calif.

• The subjects remained quite immovable, but the negative was reversed in enlarging (emulsion side up) to reverse the composition. This can be done with any negative—and frequently is.—ED.

First Cash Sale

Sirs:

You recently published a letter in your August MINICAM from the "Sterling Products Co." of Detroit asking how they could be put in touch with amateurs to take pictures for them in factories. I wrote to them about it and to date have received checks for six pictures sent them, totaling \$22.50.



In that these were the first pictures I've sold, outside of news pictures, where anything goes, I thought I should thank you, because I attribute my present knowledge to your magazine.

Enclosed is a copy of one of the pictures which I sold for \$5.00.

ADRIAN J. VAN PUTTEN.

Holland, Michigan.

"Texture Lighting Utilized"

Sirs:

I am often called on by company engineers to photograph broken machine parts and to

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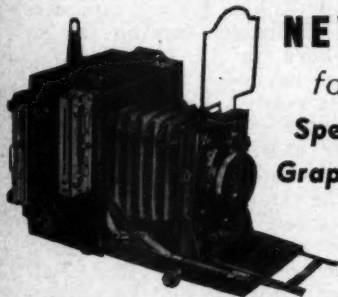
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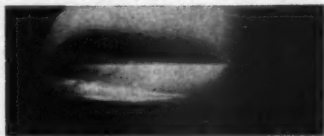
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show the grain of the broken metal. My work shows a marked improvement since reading the article on Texture in the November 1938 number.



I think that 95 percent of the damage to cars is done while they are parked. I did not notice a recent dent until I drove into my garage. Then I drew out my trusty Argus and took a shot. Here is how. One photoflood in a Victor reflector was placed about 5 feet high near the rear of fender and directed down to graze the light rays along the surface of the fender. The camera on a tripod about five feet away and two feet above the floor. DuPont Superior film, Champlin No. 15 developer, Kodabrom paper No. 2, developed in D-72.

The developing method I use with Champlin No. 15 is taken from the article by Edmund W. Lowe in the June issue of MINICAM. Develop one roll of miniature film in 16 oz., discard 1½ oz. and fill up with fresh.

W. E. WHITAKER.

Seminole, Okla.

"Mugging" Without Makeup

Sirs:

I was interested in your January article about "mugging." I am submitting a number of pix that I took myself. No makeup was used. A gal posed in my place while I focused the camera. Then I replaced her and she tripped the trigger.



The pix were taken with a model G Leica, f/2 lens, 1/60th second at f/6.3. Hoping you can use these pix. I am an amateur of two years and just started using a Leica three months ago. I work as a life-guard here.

DUKE.

Avalon, Calif.

8 Minutes In D-76

Sirs:

Boy, have I got MINICAM dead to rights! "Agfa Superpan developed 8 minutes in D-76," that's what the caption says for the print "BEAST OF PREY" on page 46 of the February issue.

What with fast films requiring more developing time than the slower ones, I should think correct developing time would have been more correct at 18 minutes than 8. I'll bet someone made an error.

CHAS. K. HUDSON.

New York City.

• No error was made. The photographer of "BEAST OF PREY" practices underdevelopment to minimize grain size.—RD.

"Pictorial Analysis" Copied

Sirs:

My brother and I get a great deal of real information from "MINICAM." To prove this I am enclosing a photograph of our String Quartet, which is made up of members of the New Orleans Symphony Orchestra, conducted by Arthur Zack. I am the viola player, top right holding the instrument.



This picture was posed and made at my home during a quartet rehearsal, by my brother Donald Van Pelt, with a Voightlander Brilliant camera. As you can see this picture is copied from the very fine one, in your November '38 issue, of the Mischakoff Quartet. The Pictorial Analyses by J. Ghislain Lootens,

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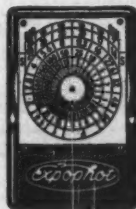


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Leica

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F. R. P. S., was carefully studied. Perhaps this picture is not all that Dr. Max Thorek requires artistically, but we think that we have a very interesting study in itself.

We will be looking forward to other articles in this department and thought that you might be interested in seeing results of an idea given by "MINICAM."

SHIRLEY E. VAN PELT.

New Orleans.

"What Is It?"

Sirs:

Enclosed herewith is an unusual photo, one of those "What Is It" shots. Actually it was taken on a recent cave exploring trip by pointing the camera straight up at an eighty-foot dome.



Data: Kodak Recomar 33; E. K. Super XX 9x12 cm. film pack; lens opening f11; large teaspoon of normal grade flashlight powder.

GEORGE F. JACKSON.

Evansville, Ind.

No Scrunch, No Scrinch

Sirs:

After a year and a half of trying to pour hypo salts through the narrow neck of a jug, always spilling some to scrunch under-foot, it finally occurred to me to:

Spill contents of large box into a pint of warm water in a graduate and pour into jug immediately. Add another pint of water to the graduate and pour again. Ditto small box of acidifier when jug has cleared. Its simple. No funnel, no stir, no slop, no scrinch. And, shaking up a jug beats stirring for quick results.

It may seem silly to submit the above, but upon inquiry among several amateur acquaintances, I found three out of five doing it the hard way. I've been prompted to wonder how many hundred more get skeevers up their spines as they scrinch around in their darkrooms.

ROBERT H. HOLMES.

Peekskill, New York.

"Bend the Film End"

Sirs:

Just a tip for W. C. Minor whose letter "Like an Angry Snake" detailed his difficulties loading a film tank.

I find that it is unnecessary to trim the film and that I get better results by bending back the end of the film and, particularly the two corners, and holding in that position for about ten seconds.

After developing one roll, cut a piece of blotter about four inches long and feed thru the grooves of the reel a couple times and you are ready for another film.

L. R. HART.

Leavenworth, Wash.

"Reverse It"

Sirs:

You write W. C. Minor that his trouble with his developing tank is that he is trying to load the film into the tank, emulsion side out. That is why he cannot get the film in. I know—as I had the same trouble for a while.

BRYCE GLECKLY.

Dodge City, Kans.

"Store It"

Sirs:

No doubt Mr. Minor uses a Leica. This camera is made so that the film is wound on the "take-up" spool in an opposite direction from the way it is wound on the magazine. When the film roll is inserted in the camera, the emulsion side is on the inside of the roll, but as the film is wound on the "take-up" spool in the camera, the emulsion side is on the outside.

To restore the natural curl of the film, with emulsion side in, wind the exposed roll back into its cartridge and store it—for a day or so. This natural curl of the film is necessary when you try to push the film into one of those reels that have a spiral groove which coils toward the center of the reel.

D. M. DECKER.

Philadelphia.

"Tap It Lightly"

Sirs:

—if, in feeding the film into the reel, it tends to jam, simply shake it gently or tap it lightly on the table—

CHARLES E. WINKLEY, JR.

Plymouth, Mass.

"Ship It Along"

Sirs:

I will give you the two rolls of Panatomic for the tank and will pay the postage.

WILLARD A. DOWNEY.

Soldier Summit, Utah.

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THERE'S a reason why the G-E exposure meter helps you take such good pictures of winter scenes. The hood excludes stray light—admits only the light from the scene. The G-E meter measures only the light your camera will "see"—assures correct camera settings. That's an important point when you're taking pictures under the lighting conditions prevailing during the winter months.

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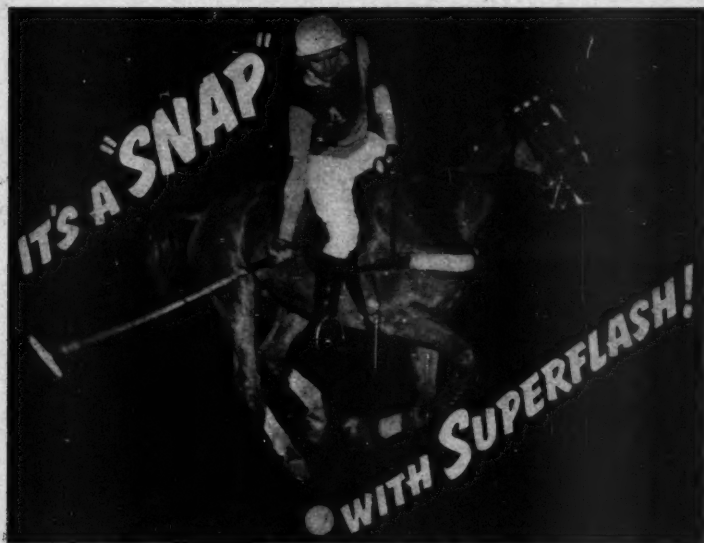
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“FOUR LEGS UP” Superflash photo, above, by Dan Grossi, courtesy New York Herald Tribune.

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SUPERFLASH . . . SUPERFLOOD



● Caught, not at the top of the leap, but on the descent: 1/1000th, f/8. K2.

by WILLIAM M. RITTASE
Illustrations by the Author

*What are the Big Six factors
that make or break every
high speed action shot?*

LEAPING through space provides the most exhilarating sensation known to man. Running a close second is the thrill of photographing a subject in mid-air—seeing a dynamic moment and capturing it forever on a flimsy square of gelatin.

But high-speed action is a Lorelei that lures countless negatives into the Limbo of the darkroom ashcan. Most attempts land on the rocks because the photographer steers blindly. A better average of success can be obtained only by mapping the course in advance. As one navigator to another, I can point out six picture-wrecking rocks.

"Look at this beauty," a fellow-lensman said to me,

and he beamed upon a print of a diver in mid-air. The action was good. But the diver's mouth was open and in the background was a telephone pole. He appeared about to swallow the pole, wires and all!

This illustrates the first of the six rocks that wreck action pictures: poor background. It may be either light or dark, but it should be uniform in tone and selected to contrast sharply with the center of action. Nothing must be allowed to detract from the main figures. Sky often is the best bet. Nothing makes a more dramatic backdrop than a vast expanse of heaven and clouds with perhaps a thin sliver of earth as a skyline to give scale.

The other factors—and they will be taken up one at a time—are lack of situa-

ble action, lack of sharp focus, inadequate shutter speed, camera movement due to the lensman's natural excitement, and failure to shoot at an action climax when the subject's grace is best displayed. An additional problem is the camera angle. But this is not sufficient to ruin a picture if the Big Six factors all are properly accounted for.

If these points sound simple one at a time, remember that high-speed problems like to gang up on you in a split second of time. Joe Louis probably could lick a hundred men—one at a time—but put half a dozen third-raters into one ring with the Brown Bomber and he would have to say "uncle" before half the customers got to their seats.

The moral, then, is, "Divide and con-

- Most important of the six factors that make or break a high speed action picture, is the necessity of shooting at an action climax when the subject's grace is best displayed. In the photograph below not one, but three subjects in rapid movement had to be timed. This single print displays three steps in the throwing of a javelin. Exposure 1/1000th of a second, f/8.

JAVELIN HEAVE

Fig. 2





GRACE IN ACTION

Fig. 3

- For the pre-focusing technique, focus the camera on a pre-determined spot, visualize the area covered by the view finder and then watch the action without looking through the camera. Be ready to touch the shutter at the split second before the desired point is reached. Most of the movement in a leap is not graceful. It is only when the dancer is expanding all her energy that she really registers. Exposure 1/1000th of a second, f/8.

● Note how the camera placed on the ground and including only a thin sliver of the horizon line accentuates the dramatic leap. Fig. 4

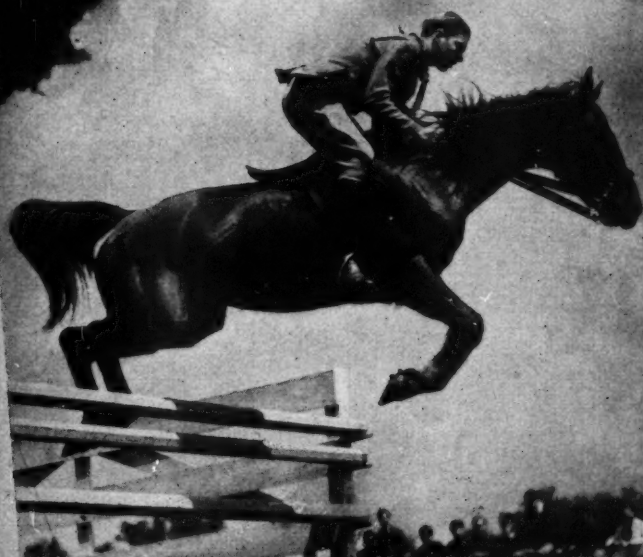


Fig. 5





POLO

Fig. 6

- The ball was placed on the ground and focused upon and the players instructed to move back 100 feet and then ride hard at the ball. The first two starts were too tame. On the third time they rode so hard and fast that the mallets became tangled and one rider's helmet flew off. Note how the immediate foreground and background are hazy and out of focus while the ball and riders are sharply etched in the center of interest. Exposure 1/1000th at f8.

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from the Hunchback of Notre Dame.

Many types of action can be stopped at 1/200th of a second. But for dramatic closeups of swiftly-moving subjects moving at a right angle to the camera, a focal

● Note how the camera placed on the ground and including only a thin sliver of the horizon line accentuates the dramatic leap. Fig. 4

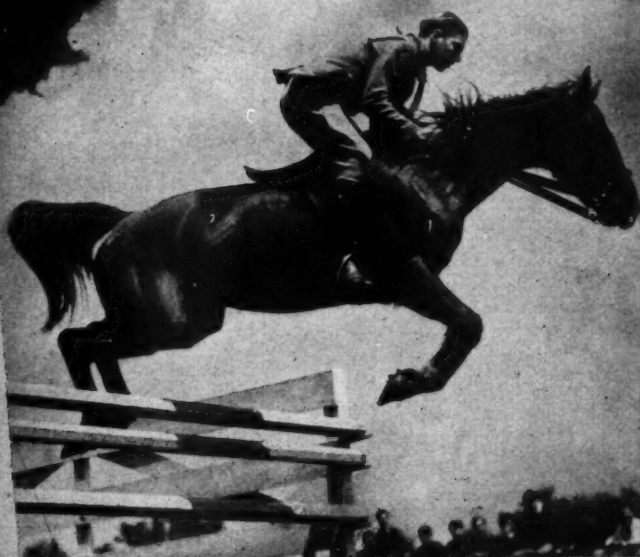


Fig. 5





POLO

Fig. 6

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plane shutter is called for and speed of $1/1000$ th of a second.

On the subject of focusing, there are two schools of thought. Technique number 1 is the "follow focus" in which the camera is focused while following the moving subject in the finder.

Really good "claimers" say they can follow any action with their special methods, keeping the figures in focus and snapping when they desire. Frankly, I question this. When they are sharp it is the exception and not the rule under such circumstances. I am speaking of action such as figures in the air, not people walking or moving in one plane. While you are worrying about the focus you are unable to pick the exact moment when the action is at its height to press the shutter. Generally you are too late and the action has softened as the figure relaxes at the end of a movement.

The second technique is the "pre-focus." One point is focused upon, the action then directed toward it. The cameraman mentally frames the area covered by the finder and then proceeds to watch the action directly and shoot at the right time.

Whenever possible, therefore, place the camera on a tripod or the ground. Move the figure to where the action will take place, focus the camera very critically wide open, and then stop down to about $f8$. We recommend $f8$ for action pictures to be safe on the depth of focus.

"What about a dive?" Ask the diver to make one or two dives first to get the focus. Allow enough on your film to cover the action—better too much than not enough. Now, with the camera focused, or even two or three cameras side by side, set the shutter and hold one hand on the cable release. The only problem left is to watch the action—not through the finder—and then click when you think it is just right, or a trifle before. If it is a person leaping you will find most of the movement is not graceful; it is only when they reach the height and are expending all their energy that they really register. With

several cameras in a row each will record a slightly different part of that action and you can pick the most appealing.

The action should be repeated several times if possible, but there is a limit to how often a person can repeat a strenuous action. Sometimes the cameraman has only one chance to make good. This means planning every step and visualizing in advance the exact instant the shutter is to be pressed. For film, use the fastest possible, such as Agfa Superpan Press or Ultra Speed, which will allow an average exposure of $1/1000$ th second at $f8$ on a bright day.

Sometimes at the seashore, or on a very bright day, we add a $K2$ or A filter. This makes the figure stand out against a dark sky.

"What about underexposure?" Yes, this often happens, when shooting at $f8$, $1/1000$ th, but with the latitude of films today you still get a pretty good image.

I have noted a deficiency in film manufacture that shows up frequently in pictures of a dark sky taken with a filter. Some defect in making the film base, or putting on the emulsion, often leaves marks and scratches in the sky part of the negative. If any manufacturer questions this we can show them hundreds of negatives with such marks and scratches.

But let's get to work. Pick a subject, someone with grace, and a background which will not intrude. The same exposure ($1/1000$ th of a second at $f8$) will be used in each case.

For Fig. 1, the girl selected was a ballet dancer because this training is best for a graceful jump. She was taken at the seashore on top of a sand dune against the clear sky. Sand is soft and feet sink into it. So a board about a foot wide and 10 feet long was put on top of the dune and covered with sand to furnish a solid base on which to run and leap. The lens was set at $1/1000$ th, $f8$, $K2$ filter. The views of the dancer at the top of her leap were discarded because the left knee was bent too much and the right foot not arched.

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The Press

GOES PICTORIAL

CROSSING the Hudson on a ferry-boat, were a group of news photographers headed for an assignment on the Jersey side. An impromptu game of stud had them enthralled—all of the lensmen

except one. He was watching a dramatic sunset and the play of light on heavy, bulbous clouds shot through with rays of the dying sun.

"Look at that sky!" He snatched his

camera from its case, inserted a film holder and ran to the bow of the boat. Before the ferry had pulled in under the New Jersey shore he had taken two pictures of the unusual cloud formation and another of a seagull.

This incident was indicative of a growing consciousness of photographic art that is spreading rapidly among press photographers. Back of this urge for creative expression is the annual exhibition of the Press Photographers' Association of New York, their fourth showing of which has just been completed.

A photographer working on a big newspaper or news picture syndicate must be aggressive, fast with his camera and, above all, able to recognize a news shot when he sees one. Most of his work is done under pressure and there are many times when he has but one brief moment to get his picture.

Working under pressure, the news photographer has little time or inclination for anything but "strictly business" work. One press photographer who felt differently, however, was William H. Zerbe, of the New York Herald Tribune. A working press photographer for 53 years, he found time to make and exhibit enough pictorial work to attain the honor of being elected a Fellow of the Royal Photographic Society. He is the only New York press photographer who is an F.R.P.S.

"For four or five years I was after the boys to start a show and they wouldn't listen," Zerbe says. "I couldn't convince them, it was a good thing."

Finally he did convince them. Now the Press Photographers' Exhibition is a recognized institution in New York City. It not only attracts those interested in fine camera work but scores of officials and persons in public life, who attend to see pictures of themselves in action.

There are 150 members in the association now, including almost every active press photographer in the city. A preview of this year's show in the Empire State Building was attended by numerous public figures including Mayor F. H. La

Guardia, Alfred E. Smith and Norman Thomas, the Socialist leader.

Mr. Thomas went there particularly to see a dramatic action picture of himself being pelted with eggs when he attempted to make a speech in Newark, N. J. The picture, taken by Ralph Morgan, won first prize in the spot news class. It actually showed the eggs sailing through the air and one breaking on the head of Mr. Thomas.

There were 500 pictures in the exhibition, representing the work of seventy-five exhibitors. Divided into four classes, there were spot news, pictorial, feature and sports pictures. All of the spot news and sports pictures were, of course, taken without being posed. A news photographer has no chance to pose subjects during a riot or when a touchdown is being made.

The thousands who went to see the exhibit not only marveled at the dramatic action of the sports and spot news pictures but were surprised at the artistic quality of the pictorial and feature classes. Arthur Sasse, of International News Photos, won first prize in the pictorial class with a picture of a white-haired woman peering anxiously through a window. See "Mother Waits" on next page. Sasse used his own mother for his subject, depicting her as she often waited for him to return from some assignment.

Included in the show were a series of 23 photographs of the principal sports events of the year, made by Jack Frank, of the New York Herald Tribune, who specializes in sports work.

Frank uses a Speed Graphic or a Graflex with telephoto lenses ranging from seventeen to forty inches. Many of his shots were taken during sporting events in the smoke-filled atmosphere of Madison Square Garden where he has to stand poised waiting for the big dramatic moments of the contest.

For this work he uses a 4x5" Speed Graphic with a seven and a quarter-inch Erneman f2.7 lens. While making such shots he works with the lens wide open at

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- "Listening," (above) proves that newsmen can take pictures of documentary value. The Civil War Vets were listening to President Roosevelt unveiling the new Gettysburg monument. Speed Graphic, one Wabash Superflash bulb, f/8, 1/200th second, Agfa Panchrome film. Print on Eastman Kodabrom. By C. Hoff of the New York News.

- "Mother Waits," made on Mother's Day by Arthur Sasse of International News Photos, won first prize in the pictorial class. The subject is the photographer's own mother pictured as she often waits for him to return from some sudden camera assignment. Speed Graphic, Eastman Panatomic film, 1/5th second at f/4.5. The print is on Eastman Bromide. It was made from the outside looking in with the illumination coming only from the oil lamp.

- The illustration on page 19 is "On the Wing," by Alan Fisher of the New York World-Telegram. It was taken with a Zeiss Super Ikonta "B," 2 1/4 x 2 1/4", 1/400th at f/5.6, on Agfa Superpan developed in Agfa 17. Print on Kodabrom, developed in D72.



High Key

P O R T R A I T U R E

By JOHN HUTCHINS

Illustrations by the Author

THE high key print, for some reason, is generally considered to belong exclusively in the mysterious domain of the darkroom sleight-of-hand artist. The fact of the matter, however, is that anyone who can make a good straight print can make a high key print. And it is not under the eerie, orange glow of the safelight that success is decided, but in the studio or living room before the shutter is snapped.

● Profiles may be treated by means of the high key technique. The general tone of a high key portrait remains in the lighter ranges except for accents such as eyes and lips. Defender XF, 2 seconds at f16.

Fig. 1



The high key technique, remote from darkroom necromancy, revolves around a two-point program, namely: choice of subject and arrangement of lighting.

What is high key? Every black and white picture contains tones ranging from white to black. A photographic print can reproduce perhaps forty gradations of tone from pure white to solid black. A reproduction in a magazine can show perhaps a dozen distinguishable tones.

A full scale print is one that utilizes all the tones from pure white to solid black. (See Fig. 7.) A low key print is one that uses mostly the darker tones in the register and has few, if any, pure white areas. Pictorial subjects and portraits of men frequently are executed in low key. Although the predominance of tones are dark, small, brilliant white accents often are included.

High key treatment utilizes the lighter tones, and usually is reserved for women, children, still life and nude figure studies. Only about ten to sixteen grey tones are utilized, or less than half of the available scale.

Here accents are of prime importance. Every high key print includes solid black, but these blacks are limited to lines or very small areas such as eyes, eyebrows, etc. The entire effectiveness of a high key portrait may revolve around a pin or other ornament so placed as to provide a desired black accent.

If there are too many accents, however,



MAID OF ANGORA

Fig. 2

● Angora bolero jackets, which currently have captured the fancy of the fair sex, fit in well with the high key scheme. High key portrait subjects must have light hair and light clothes. In the above, the delicacy of the shadows under the nose and lips illustrate typical high key lighting. Defender XF, 3 seconds at $f/22$.

the blacks begin to predominate and the print loses its high key effect. The photographer may try by over-exposing the nega-

tive and under-developing the print to lighten these tones, but then he discovers that he has falsely rendered the natural



PARASOL MOOD

Fig. 3

- Delicate gradations of tone distinguish the high key print. The background is illuminated to appear *slightly* darker or lighter than the subject. Note the dark accents of finger nails, brooch and bracelet and how the light flows around the subject. Illumination appeared flat to the normal eye but the negative saw transparent shadows and delicate tone gradations. Delender XF, $f/16$, 1 second.



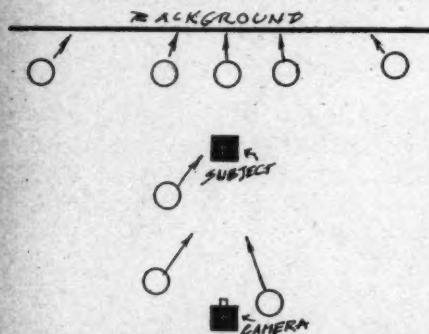
MAID SERENE

Fig. 4

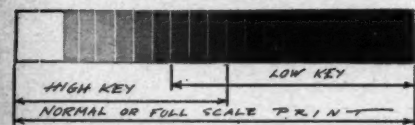
- Many moods can be conveyed by the use of simple costumes draped around a single subject. Blondes are the logical subjects for high key treatment, but dark-haired models can be posed with all or most of the hair covered. A singular contradiction is that, in high key, olive skin photographs better than pink-white skin. The prints reproduced here all were made in an ordinary living room 32 by 19 feet. Light walls and ceiling help to reflect light. Exposure $f/11$, two seconds. Delender XF film. See Fig. 6 for diagram of lighting arrangement.



LADY IN WAITING
● A costume picture dating back to France of 1600. Fig. 5



● Lighting arrangement for Fig. 4. Fig. 6



● A gray scale illustrating tones from white to black. Fig. 7

● John Hutchins arranging the costume for Fig. 5. Photo by Charlotte Becker. Fig. 8



tonal value, and consequently suffers a loss of textures.

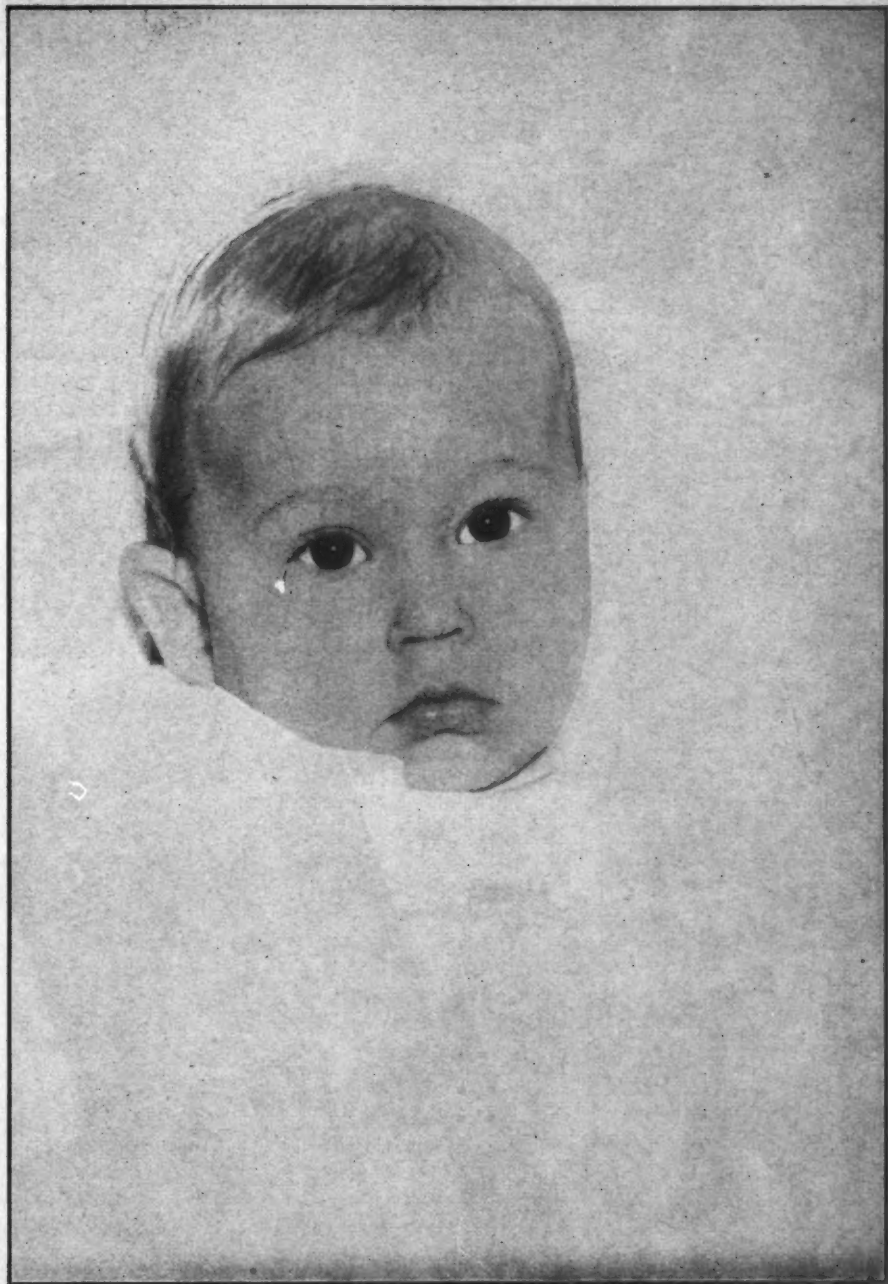
Suppose you are photographing a brunette. If the hair is not covered by some light-colored covering and is faithfully printed in as brunette hair, so much dark tone in the picture will take it out of high key. It is therefore obvious that only light clothes and, generally speaking, light-haired subjects, lend themselves to this type of picture. Naturally the choice of subject material is quite limited.

When I first attempted high key pictures, I was told a shadow outlining the figure was an absolute requisite in this style of portrait. However, I have subsequently discovered that the only true determining factor for high key is the range of tone used. First of all, procure a viewing filter or "blue glass". Working in a short part of the photographic scale, you cannot trust your eye to properly determine the extremely delicate shades of tone which will produce a picture of third dimensional quality.

Viewing filters were described in the February issue of MINICAM on page 64. One can be improvised by fastening a piece of colored cellophane between two pieces of cardboard. The window of cellophane should be about four by three inches. Use both eyes in viewing the subject. The color of the cellophane is not as important as its density. Try various shades of blue and purple that have a small amount of red. Place a single photoflood seven feet from the subject and a little above the head at the conventional 45-degree angle. Then at a distance of twelve feet, directly in front of the subject, test your viewing filter. By adding single sheets of the cellophane, you can cut down the amount of light seen. The filter should be dense enough so you can just see slightly into the shadows on the side of the face opposite the photoflood.

Without the viewing filter, your eye will see quite easily into the shadows on the dark side of the face, but the viewing filter will cut down your vision to approxi-

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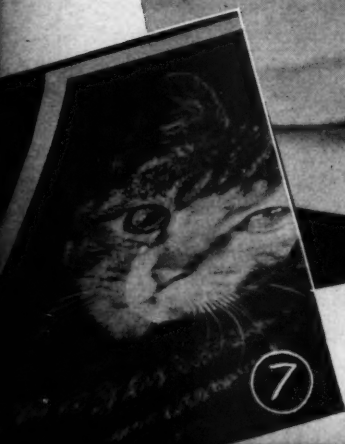


GATEWAYS OF THE SOUL

By AL. ROUBICEK

- With children as well as women, blondes are the most likely subjects for high key treatment. Lips and eyebrows are not accented as in the previous studies, the only blacks in the above being the pupils of the baby's blue eyes. The camera was focused on the eyes and the light arranged, by means of an ordinary Mazda in the reflector before the picture was snapped, so as to center the highlights in the pupils of the eyes.

Fig. 9



PRINT FAULTS

What's wrong with each of the prints shown here? How to identify and avoid print imperfections

By RALPH HABURTON

Illustrations by the Author

EVERY sheet of sensitive paper that is correctly exposed and developed, theoretically should yield a technically perfect print. In actual practice, however, many prints turn up with mysterious spots and stains. Only by recognizing these imperfections and understanding the cause of each can waste of time and materials be avoided and prints of consistent technical excellence be produced.

Number 1, on the previous page, illustrates the effect of Newton rings. It is caused by prismatic diffraction of light between the reverse (shiny) side of the negative and glass plate in the enlarger. Cure: Make sure film is properly dried before placing in enlarger or use a paper or celluloid mask between the shiny side of the negative and the glass plate.

Newton rings also can be seen by holding the negative holder with the negative in place so that light is reflected from the upper glass plate toward the eye. The Newton rings then appear like rainbow-colored drops of water moving in every direction as the pressure of the glass plate is changed.

(2) Finger prints. They may be impressed on negative, on glass negative holder, or on printing paper. Hands should be clean and dry when handling each of these.

(3) Reversed image. If the paper is printed wrong side up, no image results, or a very weak, reversed one, in which the grain of the paper can be seen. The negative should face the emulsion side of the paper which can be distinguished by its shiny appearance under the safelight.

(4) Stains. They may be caused during the developing, short stop, or fixing processes if a print floats to the top and part of it is allowed to come into prolonged contact with the air. Most frequently caused in the developer or short stop. Exhausted short stop also may cause stains. Keep prints submerged.

(5) Air bubbles. Caused by lack of agitation in the developer, or the use of exhausted, frothy developer.

(6) Prints stick to ferrotype tins. Caused by inade-

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New Horizons

FOR YOUR CAMERA

*How to shoot the subjects
that used to be "impossible"*

By KENNETH HOUSTON

THE race between miniature camera manufacturers and the film companies is very much like that of the armament and munitions biggies. One day a new armor plate calculated to make the toughest shell curl up its nose in futile shame is triumphantly announced and by 2 P. M. of the following afternoon along comes a shell that will penetrate the new armor like a prow car going to the policeman's ball. Monday brings a still newer armor and Tuesday a still newer shell and so merrily on through the ages.

In miniature photography the race has been between high speed lenses and higher speed films, with the minifans spurring on both sides. For quite a while the lens people had all the best of it and could write their own tickets, and did, too. There

● Wake up your camera to its new possibilities. Streaming sunlight (left) gives Grand Central a church-like atmosphere and gives lensmen an opportunity to try out those 128 Weston daylight emulsion ratings. Exposure 1/25th second at f/5.6. From Fourth Annual Exhibit of the Press Photographers' Association. By Pat Candido.

● Revamp your ideas of night photography. Theatre marquees and other bright spots are easy marks these days. Leica camera. Summar f2, 1/20th second. Dupont Superior film developed in G. D. X. By Roy Roselieve.





MOUNT HOOD BY MOONLIGHT

By E. D. JORGENSEN

- "Shooting at the moon" is no longer an expression of impossibility. This was taken about 10 p. m., with Leica camera, S. S. Pan, $f/3.5$. The exposure was 30 minutes, and the white lines show the movement of the stars during this period. The lines representing this motion are not straight; application of a ruler will show they are curved.

was a time, not so many years ago, when $f/4.5$ was considered mighty darn fast and, if you asked any of the old timers, even a trifle immoral.

But that was only the beginning. Newer and faster lenses appeared in rapid succession, big beautiful hunks of glass rated

$f/3.5$, $f/2$ and finally $f/1.5$, a 10-times increase in efficiency over the $f/4.5$.

During a good part of this time the film companies were bogged down with the problem of grain. When the miniature camera burst into view, like Haley's Comet, it naturally took over the then ex-

EXPOSURES UNDER EXISTING ARTIFICIAL LIGHT

(Table for night shots at $f/3.5$)

Set lens to maximum opening and use the fastest shutter speed (within the limits in the column "shutter speeds") that the amount of light allows.

This table is for Eastman Super XX, Agfa Superpan Press and Ultra Speed films. Halve the shutter speed (or double the exposure time) for Eastman Plus X or Agfa Superpan Supreme.

EXPOSURES UNDER EXISTING ARTIFICIAL LIGHT FOR SUPER-XX FILM			
For Plus-X—give double the exposure. For Panatomic-X—give 4 times the exposure.			
Stage	White Spotlights on Principal Subject.	(Colored lights require more exposure)	SHUTTER SPEEDS
	Average White General Illumination.		1/100 to 1/25th second 1/25 to 1/15th second
Boxing Wrestling	Bright Floodlight		1/100 to 1/25th second
Public Events	Bright Overhead Lighting: Hockey Games, Track Meets, etc. Public Places, Buildings, etc.		1/25 to 1/5th second
Downtown Street Scenes	To show electric signs.		1/100 to 1/25th second
	To show detail in darker objects: Store Win- dows, Floodlit Buildings, etc.		1/10th to 1 second
In the Home	Average bright: Overhead lighting. General illumination. Open lamps.		1/25 to 1/5th second
	Subdued lighting: Light from shaded lamps.		1/5th to 1 second

This table is calculated for use at $f/3.5$. Halve shutter speed for use at $f/4.5$. Double the shutter speed at $f/2.5$.



● Catch children in candid and spontaneous moods with ordinary room lighting or daylight from a window. By Vincent Lopez from Press Photographers' Exhibit.

isting 35mm. film which had been made to movie specification. The movie lads, however, cared little or nothing about grain since their pictures were intended for projection, and they had enough other problems to worry about. When they did get around to it, the film people went after the problem of grain with a vim. Presently fine-grain films appeared on the market and an enlargement ceased to resemble a sand dune.

Unfortunately, there was one catch.

Fine-grain came only at the expense of film speed. If you loaded up with a high power film you were still pretty much right back where you started from. The only solution was to use slow, fine-grain film and expensive ultra-fast lenses.

That situation now has happily changed. Research chemists have turned the tide, away from emphasis on lenses toward emphasis on film efficiency. The results are proving revolutionary not

only to miniature camera users, but to all photography.

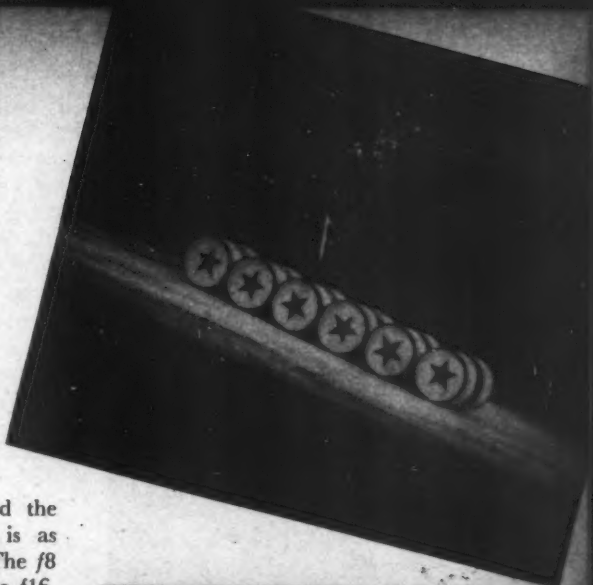
Modern camera objectives operating at $f/1.5$ have just about struck bottom so far as lens speed is concerned. The aperture $f/1.5$ is perilously close to even the theoretical maximum of lens efficiency in any reasonable focal length. To compare lens speeds it is necessary to consider the f markings not in direct relationship but in the relationship of their squares. Thus, to compare two lenses, one operating at $f/16$ and the other at $f/8$, their relationship is as 16×16 to 8×8 or, as 256 to 64. The $f/8$ is therefore 4 times faster than the $f/16$, a very respectable gain in speed.

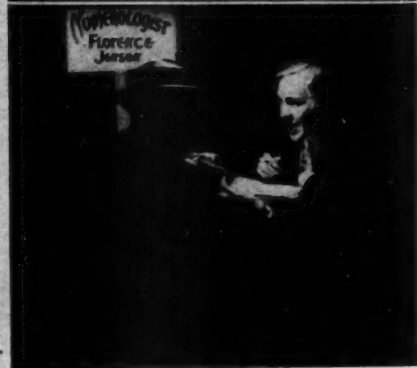
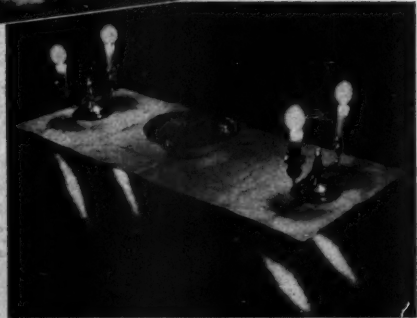
When we get down to the low figures representing the fast lenses, big jumps in speed are no longer possible. Thus between $f/2$ and $f/1.5$, the jump in power

ICE FOLLIES

By MAX PETER HAAS

- Night shooting is one problem, action is another. Together, this combination of difficulties has had most amateur lensmen stopped cold. With the new films, it's a new story. These shots of Harry Legg, a daring Canadian skater, were made at Madison Square Garden with a Leica camera and Eastman Super XX film, $1/100$ th second at $f/3.2$. An enlargement, 11×14 ", of the skater going through the burning hoop (bottom picture) was made without the slightest indication of excessive grain.





- Unusual expressions can best be captured under usual lighting conditions. Use of a battery of lights and a slow film destroy all spontaneity. This snapshot of a pup listening to a radio was sold to a number of newspapers and magazines. Ceiling lights and one 100 watt floor lamp, $f/3.5$, $1/25$ th second. By H. M. Zalmanoff.
- Candlelight furnishes enough illumination for pictures with Agfa Ultra Speed Pan. For this table top setup, camera was placed on tripod and exposure was $1/10$ th second at $f/4.5$.
- A satirical study (lower). Note that the numerologist's customer's face is a total blank. Taken by means of a single Mazda, $1/25$ th second, $f/2$, Agfa Superpan Press. By Jack Deschin.
- Indoor subjects, previously impossible, now may be snapped by means of modern fast lenses and film. Every New Yorker will recognize (right) top to bottom, "Eighth Avenue Subway," "In the 5 & 10," and "Automat." Eastman Bantam Special camera, $f/2$, $1/50$ th second, Kodak Plus-X film. Developed in F. & R. X-33, enlarged on Novabrom No. 3N with Federal Enlarger. By C. W. Gibbs, A. R. P. S.

is somewhat less than double whereas the technical skill and cost involved in achieving that gain has been tremendous. Lenses of $f/1.0$ or faster are theoretically possible but it is not likely that we shall encounter them in still photography except as scientific curiosities, or as experiments in some medium of lens making other than glass.

No such barriers stand in the way of film progress. Since the problem is purely chemical and does not run afoul of optics, film research may truly be considered as being only in its infancy. There is no reason whatsoever why films should not achieve the sensitivity of the human eye and then proceed to surpass it. As proof, consider the developments of the past few months.

Let's suppose you owned a moderately priced candid camera with a lens operating at $f/4.5$ and films such as Panatomic and Super-X. As a result, vast numbers of potentially fine shots had to be passed up with regret.

Now along come the new emulsions such





ON WITH THE DANCE

By DAVID TONDOW

● A theatre performance shot, Leica camera, Summar lens, f2.2 at 1/20th second. Eastman Super X film developed in Leitz Ultrafin S. F. International Leica Exhibit.

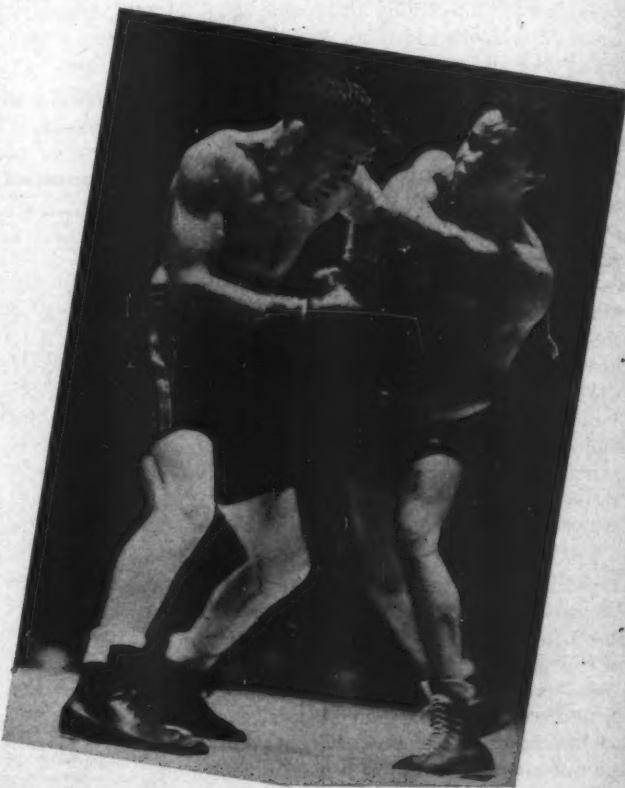
as Eastman Plus-X, Super-XX, and Agfa Superpan Supreme, Ultra-Speed Pan and Superpan Press. Are you sure you know what these new emulsions will do for you? If you are one of those who habitually uses the fastest films, gains in grain structure may leave you unimpressed, so we will postpone discussion of that phase of the matter. In the meanwhile, let's take a look at the gains in speed.

Loaded with the fastest of these films (rated at Weston 128) and with your lens operat-

ARMSTRONG WHIPS AMBERS

By JOS. COSTA, Jr.

● For newsmen or amateur at the ring side, high speed film makes possible action pictures. N. Y. News from Press Photographers' Exhibit.



EMULSION SPEED VALUES

For Eastman Kodak Film

	Scheiner		Weston	
	D'light	Max.	D'light	Max.
Super-XX (35 mm.)	28	26	80	50
Panatomic-X	23	21	24	16
Plus-X	25	23	40	24
Super-XX	28	26	80	50

ing at $f/4.5$ you have a speed potential about equal to that of an $f/1.5$ lens loaded with the fastest film heretofore available. If six months ago somebody had said, "Look, give me your old $f/4.5$ and I will swap it for an $f/1.5$, free and gratis," you would unhesitatingly have slugged him and yelled for the Bellevue cart.

Yet that is exactly what has happened. With the announcement of films such as Super-XX and Superpan Press, cameras working at $f/4.5$ to all intents become equal to an $f/2$ with the old films. What's more, it's all free and gratis—the new films don't cost any more than the old.

Undoubtedly the new films will be pleausurably received by the Contax and Leica boys, who will now, we may presume, go out and take candid shots of bats flying around in a coal mine; but the really heartfelt hallelujahs will come from us working stiffes who have never had the kind of folding money it took to lay on the line for one of those pardon-my-dust beauties. Therein lies the true import of the new developments in the film industry. Unlike announcements of still faster and still more costly lenses which left many of us on the sidelines, the new films really serve to level the difference between expensive and average cameras.

It's one thing to hitch a brand-new supercharger to the old chariot but quite another to go out and use it. Just so with the new films. Of course you are buying the new films—everyone is—but are you using them to take the same old stuff, a little faster and a bit more stopped down, or has the realization dawned that you can go out after a brand-new type of picture?

The chances are you haven't waked up to the possibilities. It's not easy to re-adjust your thinking, especially without warning.

A year or so ago you went out and purchased the best minicam your money could buy. It didn't have a lens bigger than the camera because the time didn't seem propitious to mortgage the old homestead. Instead, you snagged a few rolls of film marked "Super Something", ascertained it was the fastest available and thus equipped you went candid shot roving. Now you had seen candid pictures, here and there, stage action shots, celebrities packing away the groceries and similar tidbits. So you reasoned that if such shots were there for the taking, you'd get them, because what did the muggs who got those have that you didn't? After you inspected your first few rolls of practically blank film you found out, all right. They had lenses costing more dough than you had ever seen at one time.

So, after a while, you quit trying for the impossible. The human intellect is a

FILTER FACTORS FOR AGFA MINIATURE-CAMERA FILMS

Filters	ULTRA-SPED		SUPERPAN		PANORAM		SUPERPAN		F. O. TRANSPARENT
	Day	Moon	Day	Moon	Day	Moon	Day	Moon	
AGFA									
1	1.2	1.2	1.4	1.2	1.4	1.4	1.5	1.3	2.
3	1.4	1.4	1.6	1.4	2	1.6	2	1.6	4
5	2	1.4	2	2	2	2	3	2.5	7
40	22	45	22	32	30	50	80	160	
41	16	12	12	12	14	11	20	15	
42	12	6	11	6	12	6	5	3	
46	6	16	8	6	4	8	14	25	
48	6	2.5	6	3	6	3	4	2.5	
LEUTE									
UV	1.3	1.2	1.3	1.3	1.3	1.3	1.3	1.3	2.
0	1.4	1.2	1.4	1.4	1.4	1.4	1.5	1.2	2.
1	1.6	1.4	1.6	1.5	1.6	1.5	1.8	1.3	3.
2	2	1.4	2	1.8	2	1.8	2.2	1.5	6.
3	2	1.6	2	2	2	2	2.6	1.8	8.
5	3	3	3	2.5	3	2.5	3	6	6.
GRUO									
Infra-Red 1	16	10							
WEATHER									
K1	1.4	1.2	1.4	1.2	1.4	1.2	1.8	1.5	2
K2	2	1.4	1.6	1.4	2	1.5	2	1.8	5
F	12	6	16	6			8	4	
G	2	1.4	2	1.6	3	2			7
X1	4	4	5.5	2.5	4	3	5	4	7
X2	6	8	4	4	6	3	8	7	10
A	5	2.5	8	4	6	3	4	2.5	
B	6	8	8	6	10	6	15	12	
C5	8	12	4	8	4	8	10	20	
DEER									
L	1.4	1.2	1.6	1.5	1.6	1.5	1.8	1.5	3
D	2	1.4	2	1.8	2	1.8	2.2	1.5	4
GO	1.3	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.4
G1	1.4	1.2	1.6	1.5	1.3	1.5	1.8	1.3	2
G2	2	1.4	2	1.8	1.5	1.5	2.2	1.5	3
G3	2	1.4	2	1.8	2	1.8	2.2	1.6	4
G4	2	1.6	2.5	2	2.5	2	2.8	2	5
GR5	3	3	3	2.5	3	2.5	4	3	3
GR10	4	4	4	3	4	3	8	6	4
R10	12	6	12	6	6	3	5	3	

wonderful mechanism with a built-in range finder. After it rams a stone wall a few times, the mind says, "There's no percentage here. The heck with batting our brains out. Let's forget all about it." And forget about it we do, but so completely that thereafter our eyes simply slide over, without even seeing, the sort of pics our brain has decided we can't do anything about except moan.

As a result, now that the horizon has unexpectedly been broadened, the job is not as simple for us as it will be for the starry-eyed newcomer entering the field blissfully ignorant and without prejudice. We, so to speak, old-timers, must learn to "see" all over again, to send the message upstairs to headquarters that it's O. K. to try for the hard ones again.

By way of illustration, let's look at a few of the "impossible" subjects we can now shoot in thoroughly satisfactory fashion with an $f4.5$ lens and film such as Agfa Superpan Press, Ultra-Speed, or Eastman Super-XX, all now available in a wide range of sizes. First, there is the whole group of outdoor action shots. These require a wide aperture to allow shutter speeds of $1/200$ th of a second or faster. All the field of action shooting is wide open to us now. In good sunlight we can set the shutter speed as fast as the action demands—anywhere from $1/100$ th to $1/1000$ th—and shoot at $f4.5$ or even smaller opening.

Thus we see that the new films serve to increase the effective working aperture and also, for all practical purposes, to give us extra shutter speed. Of course, if the motion is so rapid that a shutter speed higher than the capacity of the shutter is demanded, we are still licked, but even this can usually be compensated for by shooting the action at an angle to its motion or from a slightly greater distance.

Remember those stage action shots you used to try for at the risk of being put out on your ear and having your film confiscated? It didn't take you long to discover that your $f4.5$ lens was not equal to the task, that even an $f2$ job plus the fastest of the old emulsions was hardly

EMULSION SPEED VALUES (WESTON) FOR AGFA FILMS

	DAYLIGHT	TUNGSTEN
Ultra-Speed Pan	100 160*	80 128*
Superpan Supreme	64 100*	40 64*
Finopan	24 40*	20 32*
F. G. Plenachrome	24 40*	— —
Superpan Reversible	24 40*	10 24*
Infra-Red (with filter)	2 3*	— —

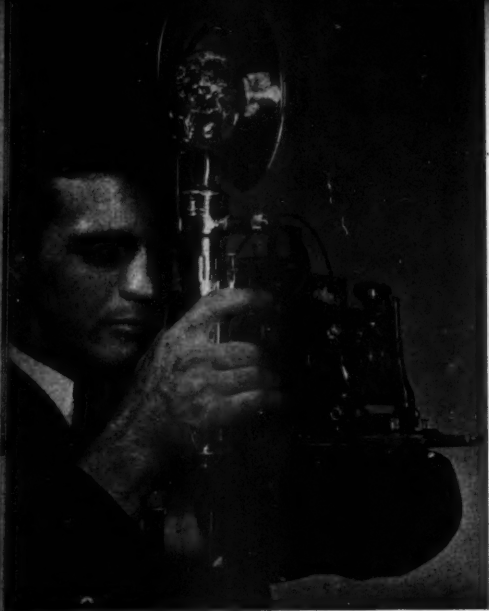
*These numbers can be used, especially by the more experienced worker, to produce negatives having less average density but capable of producing excellent prints provided a fresh developer is used of the type that does not reduce the speed of the film.

adequate. Stage shots and other indoor events by artificial light were the closed province of $f1.5$ lenses and the exclusive coterie of their owners.

Well, you can make the old college try again, this time with the assurance that if you don't get the old heave-ho you'll have something in the way of pics to show for your efforts. Under difficult light conditions, it usually is necessary to shoot wide open, the lens at its maximum f opening, and the shutter speed as slow as the nervousness of the cameraman will allow.

The table at the beginning of this article will provide a guide suitable for a starting point in determining correct exposure under varying conditions. From it one can see that candid shots indoors are no longer impossible. It's everybody for himself, again, and heaven help the last man through the door. Still, it's all good clean fun, especially if you are fast on your feet. Don't get too close to your subject, because in some states a photographer is legally out of bounds if he nestles up against his victim. This is what might be

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- "The hand that rocks the camera is the hand that spoils the picture." The newsmen's stance (left) is for large, view-cameras or other heavy equipment. The left hand grips the right shoulder to form a rigid shelf for supporting the camera. The right hand holds the camera against the face and also operates the shutter.

CAMERA



- Take advantage of walls, trees, pillars, tables and other handy means of support whenever possible. Exposures of $1/5$ th or $1/10$ th or even up to a second can conveniently be given in this way if the camera is not jarred when the shutter is pressed.

- Many newsmen like a stance (above) in which heavy view cameras can be rested on the right shoulder. The left hand grasps the left side of the camera. The front rests in the cup of the palm. The shutter is operated by cable release between thumb and forefinger. Keep the fingers out of the lens' field of view. Press the elbow against the side.

- Cameras of the reflex type or with "brilliant" viewfinders can be shoved against a wall or ceiling and focused in close quarters where an eye-level viewfinder would allow no room for the photographer's head. Exposures up to one second and more are practical in this position if camera rests motionless on a perfectly flat surface.

HOLDS



● At eye level, press the camera, not lightly against the skin, but firmly against the cheekbone. Get the trigger finger into position where it can't jar the camera when releasing the shutter.

● At waist level, pull down on the neck strap until it is taut. Lean the back or elbows against a wall or post if possible.

● With 35 mm. miniatures, rest the back of the camera firmly against the forehead with the viewfinder at the bottom over the eye.

● This position can be very steady when a cable release is used. The right hand steadies the top of the camera.

IT'S not the lens or focusing that's to blame for nine-tenths of all the unsharp or fuzzy pictures. It's the fault of the hand that holds the camera. The most expensive camera in the world, in an unsteady hand, will not give as good definition as a box outfit on a tripod. Nor can the finest coupled range finder provide sharp pictures on a wobbly support.

Use a tripod whenever possible. For hand-

● Another favorite with newsmen (right). The left hand grips the left side of the camera and holds it flush against chest and face. Elbows are kept rigidly against the ribs. Be careful not to let the fingers push the bellows out of shape or a corner of the negative will be obscured.





When spectacles are worn, the thumbs may be used to grasp the cheeks for steady support against nose and forehead.

● What's wrong with this picture? Cine-actress Martha Raye looks pretty good in front of a lens, but she's not so hot behind one. The Contax is too far away from her face for rigidity or accurate use of the viewfinder. As to her closing the eye which is next to the viewfinder, well—

● Locking the hands and elbows firmly against the body always assists in obtaining a steady position.



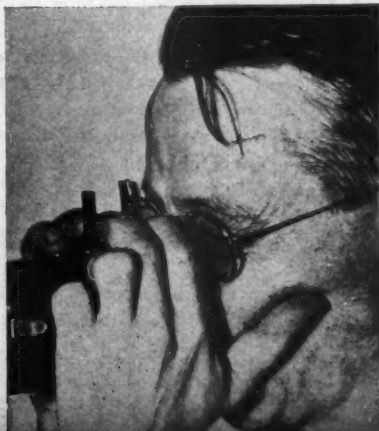
held shots, use a shutter speed of 1/50th second or faster. But at any speed, the camera must be held steady. This involves three steps: (1) a firm stance; (2) a comfortable, wobble-proof hold, and (3) shutter operation without jar.

The first step is especially important with a heavy camera or synchronizer. Stand with the feet apart, toes in, and move at the waist.

Study the camera holds illustrated here and adapt a position to suit your own needs and camera. Cameras like the Robot and Rolleiflex making a square negative require only one camera position. Other camera formats are rectangular and this means that two camera positions are to be mastered—for horizontal and for vertical pictures. The hand that oper-

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● In this position for horizontal pictures, the fingers are laced around the viewfinder. The second finger of the right hand operates the body shutter release.



Home POSTURE Clinic

In the home, as well as in schools, posture tests are easily made with any camera. Adults, too, should be posture-tested

By GRACE VON ALLMEN

Illustrated by the Author



- Two silhouette views normally are made, one of the back and one profile. In addition, the back may be photographed, as shown above, and then, on the print, a pencil used to trace the spinous processes of the vertebrae.

POSTURE study and correction is accepted as an important part of physical training in the modern graded school. Posture is recorded in two different ways, either by photographing the silhouette of the child or by tracing his outline on a graph from a ground glass image. The usual camera for this work is a cumbersome thing requiring slow ground glass focusing, changing of plates and long exposures. The tracing takes a lot of time and is inaccurate.

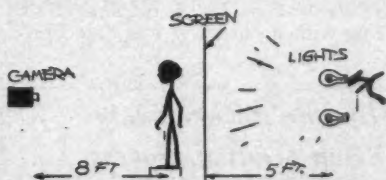
At the Ballard School near Louisville we recently completed a survey of two hundred children with the least possible trouble, in a very short time—with a Leica camera and a few rolls of film.

A drop screen of architect's tracing cloth marked off with 1/16 inch black lines into two inch squares was hung from the ceiling. Behind this we used two No. 2 G. E. Photoflood lights in twelve-inch aluminum reflectors. These lights were placed five feet behind the screen and directed to illuminate the cloth evenly.

The children stood on a wooden block in front of the screen; the camera was held about ten feet away, the distance varying with the height of the subject. We took two views of each child, one back, one profile.

An additional photograph was made of a few of the subjects. Retaining the two lights behind the screen, a third Photoflood was directed on the child's back to get an actual picture instead of a

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- Setup for taking silhouettes (left), and one of the resultant photographs (right). Leica camera, Leica Summar lens, Agfa Superspan Supreme film, Exposure 1/100th second f6.3.

Leonard Misonne

Pictorialist par excellence, the world's top-ranking salon exhibitor, has no use for Modernism or Purism. A reply to "Who is Purist."

By HENRY CLAY GIPSON

Leonard Misonne Photographs

MISONNE'S career not only is the longest, but also the most successful in the history of pictorial photography. The first prints he exhibited attracted attention. As early as 1908 a French art critic called Misonne, "the king of the countryside". He has retained this title ever since.

Misonne's name and work is known, appreciated and enjoyed in every country in the world. There is hardly a salon of any importance that has not at one time or another had the pleasure of hanging a "Misonne".

Not many photographers have so imbued their work with their personality that salon onlookers suddenly will turn and say, "Look, there is a Misonne," just as in an art gallery it is not necessary to turn to a catalog to identify a work by Rembrandt or da Vinci.

Misonne is the world's most successful salon pictorialist. This is the verdict of the judges of 184 leading international salons who hung 826 Misonne prints during the past five years. The record put the already famous Belgian at the top of the list of "Numerical Evaluation of Pictorial

Achievement" compiled by the American Annual of Photography 1939.

WHAT is the secret of this great landscape photographer? The key is in learning how to choose subjects and how to know what a camera can and cannot do. He says, "Learn to see like a camera lens. Visualize every subject in terms of a flat black and white print."

At one time, Misonne might have been called a revolutionary. He noticed beauty in the very scenes which discouraged other artists—in rain, snow, mud, ruts, and fog. When the weather drove other men indoors, he found the most delight in nature. For years he went out every morning at sunrise and returned at 8 a. m., saying that the day already was finished, that no more pictures could be taken.

When photography was being hailed for its faithful rendition of detail, Misonne stood up to declare that excessive detail is an evil and that it is necessary to avoid clear weather and open sunlight. He preferred foggy, hazy atmosphere.

When other workers would consider working with no negative less than 8x10",

A description of the famous "Misonne" technique, including how to use his Medio-Brom printing process.



AFTER THE STORM

FIG. 1

- "Observe the light! You do not know it—you do not suspect it—but you photograph things for what they are. This is incorrect. What you should do is photograph them for what they appear." Thus advises the master of interpreting visual light in terms of actinic light. Misonne astonished the world with his first photographs of rain, storm, mud and fog. Where other photographers saw only unpleasant weather, Misonne saw startling dramas of lines, forms and light.

Misonne used a 9x12" centimeter camera (3½"x4½"). With the modern trend toward smaller cameras he now uses 6x9 centimeters. He uses a Tessar lens, but considers it an insignificant detail. He uses Orthochromatic film exclusively. He doesn't worry about exposure, frequently overexposing negatives, but getting good prints out of them anyway.

"Observe the light. You do not know it, you do not suspect it, but you photograph things for what they are. This is incorrect; what you should do is photograph them for what they appear."

This certainly is a radical doctrine and the opposite from what purists, documentary photographers and newsmen are taught, but it is the heart of Misonne's point of view.

Do not depict a subject, he says, but light's effect upon it.

To know how to see is the essential quality of the photographer—and it is

the most difficult ability to acquire.

To learn how to see, develop the powers of observation. Watch light everywhere, every place and every time. Watch its effect and what it does to things.

"Light and atmosphere are everything."

The secret of rendering light and atmosphere is open to anyone with eyes with which to observe nature, he says. It is the effect that should be depicted and not the subjects only.

A scene often is attractive only because of the color in the sky, water or vegetation. A symphony of blue, green and autumn brown may be a suitable subject for color film but not for black and white. Some scenes, on the other hand, appear effective only because of lighting contrast. In brilliant noonday sunlight the eye sees detail even in the shadows. The camera, however, loses all this detail and produces

● Misonne is an idealist—but he has not sacrificed photography on the altar of art. One of his devices is the use of brilliant highlights as an important part of many compositions. There may be only one or two small spots where the bare paper shows through, but these highlights, especially in the original enlargements, add great brilliance and life. Note, for example, the white headresses of the central figures below.

OLD HOUSES, OLD PEOPLE

FIG. 2





POUL WEATHER

FIG. 3

- Demand from your camera no more than it can give. The brilliant colors and excessive contrasts of ordinary scenes deceive the eye. Misonne seeks out hazy days and frequently shoots, as in the above, right into the light. Excessive detail, contrast and color are eliminated. By means of this technique, subjects of short tone range are selected and the problem of seeing as a camera sees is simplified. Foggy days and early morning mist suppress both color and contrast to bring the subject within the latitude of the photographic printing emulsion.

but a silhouette or a black and white design.

On overcast days, the eye interprets flatly lighted scenes in terms of appreciable contrast, but a negative produces only a monotone of dull grey.

Misonne, therefore, avoids both excessive contrast or total lack of contrast. Foggy days are his delight. Then colors disappear, the effect of perspective is increased, and superfluous detail is suppressed.

The Modernist or Purist maintains that the best photograph is the one that has the

most detail. Misonne, on the other hand, feels that excessive detail is a defect. In order to eliminate the profusion of detail that may defeat the purpose of an artistic representation of a scene, Misonne frequently waits weeks for suitable foggy or hazy weather.

In choice of subject matter Misonne once was a revolutionary. Having perfected his technique, his point of view crystalized and then he was accused of being a reactionary.

At a gathering which was a sort of fore-runner of camera clubs, someone once said, "Where is Misonne? Why don't we see him?"

Someone answered, "He doesn't come around any more. He's suffering from *Misonneisme*". Meaning "hatred of the new", this word was in use long before Misonne.

It is true that Misonne is no Modernist; his own technique is perfect enough. He makes no concession to modern realism and even enjoys hearing the comments of modern critics. He is an idealist.

But he has not sacrificed photography for the sake of art. Misonne's work always remains a camera product. He makes straight enlargements and resorts to control only to darken or lighten a few areas and heighten a desired effect. Once in a while he uses a diffusing screen on the enlarger lens. These measures, moreover, are limited to the sky areas, and the great observer and student of nature

- For the artist, there is beauty in the most prosaic subject. Here the "King of the Countryside" shows his versatility and brings his characteristic technique indoors. Attracted by the reflections on the wall, he posed a couple of subjects and spilled a bucket of water on the floor. The eye makes the artist, he says, and close observance of people and things develops the faculty of observation.

THE COOL RECEPTION.

FIG. 4





SMOKE AND VAPOR

FIG. 5

- At the beginning of the century, Misonne was a revolutionary who amazed and delighted the world with a new technique that drew immediate acceptance. His photographs, perfect as etchings, conformed to the classical ideas of art, but for subjects, he chose inclement weather that previous workers had not dared to consider. The scene above was meaningless pictorially as early as eight or nine o'clock in the morning. But shortly after dawn, the artist caught the mood of brooding sky, factory steam and vapor rising from the river's surface. No one has yet surpassed Misonne in his superb rendering of perspective.

is well qualified to make skies and clouds conform to his pictorial demands.

At an early stage in his career, Misonne found that straight enlargements did not always give the desired effect. He was not an advocate of indiscriminate retouching, but he wanted to darken or lighten areas of his choice.

The oil pigment and bromoil processes are still used much as they were then. It is worth getting a general idea of how they work in order to appreciate the advantages of the Medio-brom method which Misonne recently worked out. Any experienced worker in oil will have no difficulty with Medio-brom. In fact, Misonne says he would enjoy hearing from experimenters.

The oil-pigment process is a process for the production of prints in permanent oil pigments on a photographic base. A sheet of gelatin-coated paper is sensitized by im-

mersing in a solution of potassium bichromate. Dried, it is used as the ordinary P.O.P. (printing-out paper), and a contact print made. The print is washed in plain water until the gelatin swells and the image stands out in low relief. The print then is inked with lithograph ink or, preferably, with the special oil pigment available in tubes for this purpose.

As the result of the soaking, the lighter areas in the print have absorbed the most water. These areas repel the pigment more than the shadow areas. The parts of the print absorb ink in proportion to their density. The ink takes several hours to dry and the worker can darken any desired areas, or he can lighten them by removing ink with a gum eraser.

The resultant print, however, sometimes lost its photographic character. An

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● Mario Manzo cannot see, but he amazes his friends who can by taking many snapshots like those reproduced below. Here he is practicing with a strip of paper before developing his next roll of film.

Blind Students take Pictures

Sightless photographers, believe it or not, are not only taking pictures, but doing their own developing as well.

By JOSEPH C. KEELEY

TO the casual observer the boy was just another amateur photographer. In his hands he grasped a box camera. His subject was a sand-lot ball-player, all set to bat the next ball through some convenient window. There was a brief pause as the picture was snapped, then the cameraman moved away.

A familiar sight, of course, but with one difference. The photographer in this case was not like you or me. He was blind! The picture he took appears on this page.

Call it strange, queer, ridiculous, if you will, this incident of a picture being taken by a sightless sixteen-year-old. But back of it is a sound venture in education, fantastic as it may seem on the face of it. And the experiment has been feasible, even to the extent that the blind have been taught not only to take creditable pictures, but to develop and print them as well.

Why, you may ask, should blind youngsters have any interest in photography? Isn't that an art or a pastime for "the sighted"? Isn't photography just a means of recording scenes which meet the eye? Why then record scenes which the pho-

tographer's eyes cannot see in the first place? What earthly good is the most lovely photograph, granting that a blind



● Blind photographers took these snapshots. The lower two, by Mario Manzo, are titled "Paul and His Dog," and "Stick Ball." He has no vision. The upper snapshot, titled "Principal's Home," is by Marguerite Mahoney, whose vision is 20/200.



HANDS THAT SEE

By ROY PINNEY

● Taken at the Braille Library, Brooklyn Bureau of Charities with a 4 x 5 Speed Graphic, 3 seconds at $\frac{1}{32}$. Eastman Panchro Press film. This print won the special medal award at the Third Virginia Photograph Salon held in co-operation with the camera club of Richmond.

person could take it, when he can never see its beauty?

These questions all occurred to me when I first learned of the new course in photography at the New York Institute for the Education of the Blind, in New York City. The whole project seemed illogical, senseless. I learned otherwise on talking to several of the boys of the class and their instructor, Paul C. Mitchell, head of the Department of Natural and Physical Sciences of the Institute.

It was no freak idea, this course in photography for the blind. Nor was it worked out, as a carnival man would say, "with mirrors". Minus magic formulae and hocus-pocus, it evolved from Mr. Mitchell's personal interest in still and motion pictures. Several years ago, the science instructor began making movies of educational methods employed at the school. This developed into an ambitious undertaking, with 6,000 feet of Kodachrome

used in the project, which has since become an outstanding educational feature. In the making of these motion pictures, Mr. Mitchell was constantly surrounded by students who seemed fascinated by the procedure even though they could not witness it. A barrage of questions met him at every turn.

Surprised at this interest in photography, he sounded out his science classes, asking them if they would care to take a special course in the subject if one were made available. Out of a group of sixty, fifty said they would like to take such a course. From this number eight were selected to comprise the first class, the maximum possible with the facilities available. Out of this group, all boys, four were totally blind and the remainder had partial vision, though slight. In age they ranged from 14 to 18.

Talking to some of these boys, I received a very strong impression of their in-

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MARGARET BOURKE-WHITE

Goes to a Party



● The famous lenswoman arrives flanked by bellboys loaded to the gunwales with equipment including No. 2 and No. 3 Superflash bulbs. The camera in her hand is a Linhof. Below, she is shown at work, without even stopping to take her coat off, the Linhof on a tripod.



By FRANKLIN E. BRILL

ONE bright morning, on the Iowa-Nebraska border where prairie schooners used to take off for California, a westbound sleeper plane rolled to a stop. "Omaha", whispered the pilot, and out popped a smartly-garbed young woman followed by an array of luggage plastered with stickers from every part of the world.

It was Margaret Bourke-White arriving single-handed to photograph and report

for *Life Magazine* the corn belt's most lavish public function, the Ak-Sar-Ben Coronation Ball.

Few people outside of Nebraska have heard of Ak-Sar-Ben, derived from reverse spelling of Neb-ras-ka and started during the panic of 1896 as a gesture to attract people to depression-ridden Omaha. But to Miss Bourke-White, it was a typically splendiferous mid-west social function showing how inland Americans organize for play and publicity.

An hour after the plane taxied in, the attractive young photographer had her
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● The Ak-Sar-Ben Coronation Ball, held in a stadium almost as large as Madison Square Garden, sees Bourke-White carrying on in a scarlet evening gown with a focusing cloth on her shoulders. Three sea-scouts were mobilized to carry cartons of Superflash bulbs, load and re-load reflectors. Photos by E. K. Langevin of the Omaha *World-Herald*.



- Most dramatic Bourke-White shot caught Queen Kathryn in a \$500 Hattie Carnegie gown, emerging through the golden doors. Life blew it up to full-page size. Three flash bulbs, $f/16$, $1/200$ th second.



- In comes the roast pig, carried by high-stepping waiters while a turbaned Negro shakes two gourds and lights are dimmed. To retain the dramatic feeling and the deep shadows, Bourke-White used only one flash; $f/8$, $1/200$ th second.

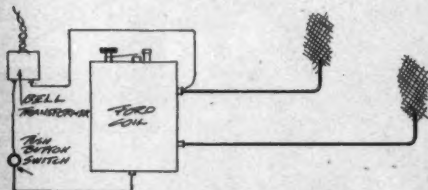




- "Flight without wings" (above). Taken with a Speed Graphic, Jacobson synchronizer and one G. E. Photoflash bulb, $\frac{1}{9}$, $\frac{1}{2000}$ second. To stage an "April Fool" camera party, a shock coil may easily be improvised. Flash bulbs are not required if there is enough light to permit a $\frac{1}{2000}$ second exposure by sunlight or flood lamps.

- Installation of April Fool "portrait chair" (right), showing the method of placing wire mesh in seat of chair, and running wires down under the chair to cigar box operated by assistant. The two strips of mesh wire can be placed in any manner, just so the subject makes contact between the two.

- How to connect the apparatus (below). The bell transformer is plugged into any A. C. circuit. From the binding posts on the bell transformer, wires are



run to the Ford Coil, one of the wires going through a door bell push button. From the two terminals on the side of the coil, insulated wires are run to the "April Fool" chair. Ford coils may be obtained in second-hand shops or for about 90 cents, new, from auto supply and mail order houses. If a high-tension coil suitable for operation on house current is obtainable, the bell transformer may be eliminated.





• "Whoops," it's all modern machine age fun! The writer takes a picture while an assistant presses a button on a spark coil to convert the innocent armchair into a momentary hot-seat. Speed Graphic shot, 1/200th second, f9. "April Fool!"

By JESS LAUGHLIN

Illustrations by the Author

HERE is your chance to even the score with the guy who caught you flat-footed last April Fool's Day with an exploding cigar, candy-covered soap or foolish errand.

To stage an April Fool party that will keep the gang laughing for the next 365 days, all that is needed is a shock coil, a camera capable of shooting at 1/200th of a second, and a crowd of good-natured victims.

The "hot seat" is any comfortable chair *wired for action*, by means of two flat pieces of galvanized mesh wire placed on the seat as shown in the illustration on the previous page and covered with a thin cloth or seat cover. When the unsuspecting victim sits on the wires, a button is pressed to complete an electric circuit and send the portrait sitter sky-high while the photographer snaps his shutter to record forever the victim's surprise, anguish and amazement.

The amount of current produced is too small to cause any injury while the voltage is high enough to furnish a sudden shock such as derived from touching a spark plug on a running motor.

If you have a flash synchronizer, shooting the pictures will be easy, but if you

don't it still can be done quite readily.

In the accompanying April Fool picture of a man and a girl, Speed Graphic was used, Panchro Press film, Jacobson synchronizer. The exposures were made at f9, 1/200th second at eight feet.

In the absence of a synchronizer, open-and-shut flash may be used. The camera is put on a table or tripod and set on "Time" or "Bulb" or for a 1-second exposure. The shutter is opened, the bulb, in a hand reflector, is flashed, and the shutter closed. Keep the room lights dim so that too much light will not enter while the lens is open during the fraction of a second before and after the flash. Use a small bulb of the foil type such as G. E. Mazda No. 10 or No. 7 for this type of open flash. Having a short peak, the foil type bulb provides the fastest exposure or about 1/50th of a second. To best catch the action at this speed, keep the camera 10 or 15 feet from the subject. Lens opening of about f16 will be indicated by the exposure table furnished with the bulbs.

When the "hot seat" is ready, the camera set up and correct exposure determined, invite the guests in one at a time. Some will be flattered and prance

(Page 76, please)

T A K E



● Taken with a lens extension tube, 1/25th second, f/5. Fig. 1

Giant Closeups

Lens extension tubes make macrophotography easy with the Argus and other cameras of the interchangeable lens type

By H. M. BROWN
(International Research Corp.)

MACRO-PHOTOGRAPHY opens up a new range of exciting subject matter for every camera user. Subjects that can be photographed at home include

postage stamps, coins, bullets, finger prints, flowers, plants, seeds, insects, and small animal life.

Crystals, small machine parts, medical

EXPOSURE TABLE

When copying or photographing small objects, approximate exposure time in seconds or fractions of a second will be as follows when using two 40-watt frosted lamps in reflectors about eight inches from the subject.

FILM	Weston Rating	f/3.5	f/4.5	f/6.3	f/11	f/18
Agfa Fine Grain Plensachrome.....	12	1/15	1/10	1/4	3/4	1 1/2
Eastman Microfile.....	2	1/2	1	1 1/2	7 1/2	15
Panatomic X.....	16	1/20	1/10	1/5	1	2
DuPont Micropan.....	4	1/4	1/2	1	4	8

The Weston emulsion ratings are given for tungsten light.

Eastman Microfile film is well suited for the copying of printed or typewritten matter.

DuPont Micropan and Eastman Panatomic X are especially suited for the copying of blueprints. Use a 5X red filter for this purpose.

Agfa Fine Grain Plensachrome is preferred for copying lantern slides and other black and white illustrations in which a complete tone scale must be reproduced.

and dental specimens, jewelry, typewriting and hand writing specimens, miniature art objects and thousands of other subjects can be easily macro-photographed in black and white or color, opening a new universe for photographic exploration.

Macro-photography is not to be confused with micro-photography or photomicrography. The prefix "macro" means "large". "Micro" means "small".

Photo-micrography is the photographing of tiny objects with the aid of a microscope. A photo-micrograph is a highly magnified photographic image of a very small object such as is usually placed on the stage of a microscope.

Micro-photography, the opposite of photo-micrography, is the production of a very small image, so small that a microscope or magnifying glass is required to examine it.

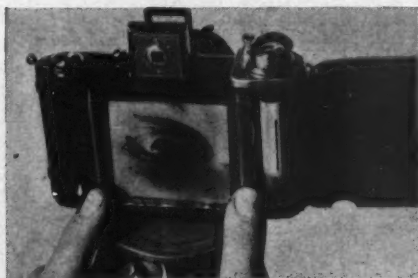
Macro-photography is the photography of small objects relatively close up. If an

object is photographed full size, or even less, the negative can easily be enlarged to make a print five or ten times the size of the original subject.

Most cameras permit focusing no closer than three feet from the subject. At this distance, the standard 2-inch lens on a 35mm. camera can produce an image only 1/17th natural size. An object 25½ inches long is reduced to 1½ inches on the negative. But by the simple expedient of inserting an extension tube, focusing can be accomplished down to very short distances.

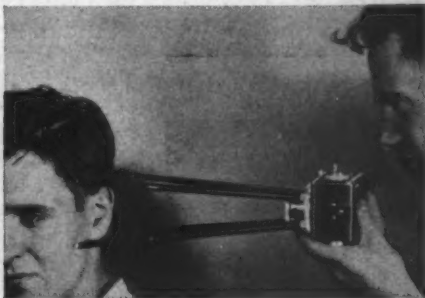
If the extension tube is long enough, (with a 2-inch lens) to allow four inches between the film and the focal center of the lens, the lens will be in focus on a object at the same distance (four inches) and will produce a negative image the exact size of the subject.

A negative so obtained can be printed in the enlarger and a man's finger nail



● With film removed, open camera back and place a piece of ground glass (ground side facing lens) in the film plane. Put shutter on Time and with lens wide open, focus on subject.

Fig. 2



● An Argus macro-attachment in use. The legs of this type of attachment delineate the area of field covered and also the correct distance, thus making it unnecessary to open the camera for each exposure or to focus on a ground glass.

Fig. 3

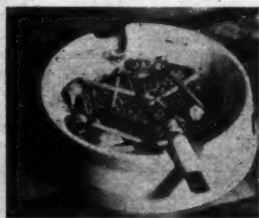
Depth of Field Table for Models C and C-2 Argus Cameras

Feet	f:3.5	f:4.5	f:6.3	f:11	f:18
3	2'10"-3'1"	2'10"-3'2"	2'9"-3'3"	2'8"-3'5"	2'6"-3'10"
3.5	3'4"-3'8"	3'4"-3'9"	3'3"-3'10"	3'0"-4'2"	2'11"-4'8"
4	3'9"-4'3"	3'9"-4'4"	3'8"-4'5"	3'5"-4'10"	3'1"-5'7"
5	4'8"-5'3"	4'7"-5'6"	4'5"-5'9"	4'1"-6'8"	3'8"-7'10"
6	5'6"-6'7"	5'5"-6'9"	5'3"-7'1"	4'9"-8'2"	4'2"-10'7"
8	7'2"-9'0"	7'0"-9'4"	6'8"-10'0"	5'11"-12'4"	5'1"-18'10"
10	8'9"-11'8"	8'5"-12'2"	8'0"-13'4"	6'11"-17'10"	6'10"-35'6"
15	12'5"-19'0"	12'2"-20'7"	10'11"-24'0"	9'0"-44'0"	7'3"-∞
25	18'0"-38'6"	17'3"-45'6"	15'4"-57'4"	11'10"-∞	9'0"-∞
50	29'5"-∞	26'4"-∞	22'2"-∞	15'8"-∞	10'10"-∞
100	41'7"-∞	35'8"-∞	28'5"-∞	22'3"-∞	12'3"-∞
∞	71'5"-∞	58'6"-∞	39'9"-∞	22'9"-∞	14'0"-∞

thus easily made to appear as large as his head!

To focus close enough to a subject to create a full-size image, cameras of the "view" type are equipped with double-extension bellows. These permit the lens to be racked out to a distance double the focal length of the lens.

In miniature cameras, the lens extension is obtained by means of an extension tube. With any camera of the interchangeable lens type, the lens simply is screwed out and a tube of suitable length inserted between it and the camera.



● Just the contents of an ash-tray. Fig. 4



● Just four collar buttons. Fig. 5

The third method is the use of a supplementary lens. A spectacle lens (spherical) or a magnifying glass also may be used. The supplementary lens, when placed in front of the regular camera lens, shortens the

effective focal length and thus permits the camera to be focused closer to the subject. (The use of supplementary lenses was described in MINICAM for August 1938, page 23.)

Those who own cameras such as the Argus model C or C2 with interchangeable lenses, can employ an extension tube between the lens mount and the camera, to increase the focal distance and enable pictures to be taken very close to the subject.

Mailing tubes also serve very well for this purpose and with a little ingenuity a very satisfactory lens extension system can be arranged for any camera.

For the Argus model C or C2 camera, a Macro Kit is available. This Kit consists of two lens extension tubes, two stages, two sets of supports, one mounting ring, and a focusing glass. (Fig. 8.)

The legs or supports not only hold the camera away from the subject matter at the proper distance, but they also frame the subject matter so that everything within the area formed by the ends of the support is within the area covered by the negative. These supporting legs can be extended or collapsed to suit subject matter and in accord with the number of lens extension tubes employed.

Miniature cameras without the interchangeable lens feature can be utilized for macro-photography by means of one or more supplementary lenses. A few experiments with a ground glass and such portrait and copying lenses as are available will enable you to determine the combination that will provide the correct focal distance for the subjects you desire to photograph. After this has been determined a set of wooden legs or supports of suitable lengths can easily be made from dowel rods. These are tapered to fit into holes bored in a supporting block designed with a hole in the center that will hold the camera and permit the lens to slip through into position very much as the camera and lens are held by the Argus Macro supports and ring.

Another method is to obtain a mailing



● Is this a horseshoe factory, anchors for a fighting fleet, or—see Fig. 5.

Fig. 6

tube 18 or more inches long and arrange two wood blocks with holes of the same diameter as the tube, to act as supports when these blocks and the tube are mounted horizontally on a flat wood base. (See Fig. 10.) A lens board is screwed on to the front supporting block covering one end of the tube and the lens is removed

from the camera and mounted on this lens board. At the other or back end a second-hand view back from a small camera can be screwed in place.

Focusing is accomplished by moving the subject rather than by changing the distance from lens to film. A convenient arrangement can easily be set up to permit making this adjustment at the back or view end of the camera through a flat strip of wood that can move flat on the base board through holes cut in the supports. This flat wood strip carries the table on which the subject matter is placed.

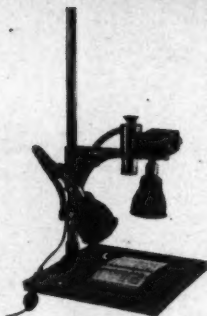
For more advanced workers the Argus techniscope provides the ideal set-up for macro and all types of precision work. The techniscope illustrated in Fig. 9, consists of a base on which a vertical support carries lighting equipment and a moving arm on which is mounted a sliding focusing head for use with model C or C2 Argus cameras.

With the techniscope, the interchangeable lens is removed from the camera and screwed on the focusing equipment of the techniscope. The camera is then mounted on the other sliding element of the focus-

● Is this the remains of a tenement fire, a city razed to the ground, or—see Fig. 4. Fig. 7



- Argus Macro Kit shown in use (below). The black, rectangular "stage" delineates the size of field covered, and the legs set the camera at the correct distance. Fig. 8



- The Argus Techniscope (above) is a complete copying stand. The camera works on a slide-focusing mount that permits rapid ground glass focusing between exposures. The Techniscope is adapted for photomicrography with a microscope as well as for macro photography with extension tubes. Fig. 9

ing head so that either the focusing eye piece of the techniscope head or the camera itself can be slipped into position over the camera lens. This whole head can be mounted either vertically or horizontally depending upon the subject matter and extension tubes can be placed between the lens and the focusing arrangement so that any desired lens extension can be obtained.

The subject is focused through the eye piece on a ground glass in the focusing head through the camera lens. When critical focus is obtained, the head is slipped over so that the camera falls in position over the lens and an exposure is made. Ground glass focusing can be se-



- A home made horizontal macro camera. (A) Sliding focusing arm. (B) Cut film or plate view back. (C) Cardboard mailing tube painted black inside to eliminate reflections. (L) Lens and lens board. (S) Subject. Fig. 10

cured between each individual picture desired without the necessity of removing the film from the camera. With this device it is possible to copy slides, books, manuscripts, make macro pictures of a myriad of subjects.

The entire focusing head can be removed from the techniscope and mounted on a tripod for critical portrait or close-up field work. The techniscope can also be used with a microscope which is set directly under the focusing head on the baseboard and the focusing head support lowered immediately over the microscope so that focusing through the techniscope eye piece can be obtained.

Whether you are interested in macro photography for scientific, industrial, or educational purposes or just for fun, the mystery, romance and unlimited subject matter in the hitherto unnoticed world of small objects will add much to the pleasure you can derive from your miniature camera.

ARGUS SIZE OF FIELD TABLE

For 35 mm. cameras with standard 50 mm. (2 inch) lens.

Table of fields covered with various combinations of extension tubes and No. 1 Argus supplementary lens
Distances are measured from front of lens to subject.

	Size of Field (Lens set at infinity)	Distance to subject	Size of Field (Lens set at 3 ft.)	Distance to subject
No. 1 Supplementary Lens only.....	8½" x 12¾"	19½"	5" x 7½"	12¼"
Short Extension Tube and No. 1 Supplementary Lens ..	2¾" x 4½"	8"	2½" x 3 ⅞"	6¾"
Long Extension Tube and No. 1 Supplementary Lens ..	1¾" x 2½"	5¾"	1½" x 2¼"	5½"
Both Extension Tubes and No. 1 Supplementary Lens ..	1¼" x 1¾"	4¾"	1¼" x 1⅞"	4½"
Short Extension Tube only.....	2¼" x 3½"	6¾"	1¾" x 2⅞"	5¾"
Long Extension Tube only	1½" x 2¼"	5"	1⅞" x 2 ⅞"	4¾"
Both Extension Tubes.....	1⅞" x 1⅞"	4"	1" x 1½"	3¾"

The Camera

Unwilling subjects, in early days of photography, were criminals and babies!

By DR. OTTO BETTMANN

BABY pictures were the delight of the nineties, and every such picture taken was hailed as the image of the loveliest child in the world. This idea is still prevalent, but babies are challenged for top honors as subjects by broken wagon wheels and homeless men snoring on park benches. Babies are still with us, but the classic words of the photographer, "Look

at the birdie!" are now part of the past horse-and-buggy days of photography.

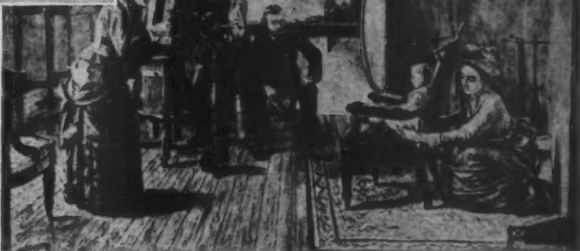
How the poor photographer of another day had to sweat to keep the little ones in place! What sweet persuasion he had to use! In most cases the entire family of the child had to go to the assistance of the perplexed man under the black cloth, as pictured in the woodcut. Since immobilizers were not available in infant size, the mother had to act as such. Aunt Bessie took over the little birdie. Father's task was to look stern and silence the child with authority. The little dog before the camera served as an example of how perfectly still a living thing could sit if it wanted to.

The photographer had not only to be an able technician but also a good psychologist.

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- "Mugging" criminals of 1890 (above) as drawn by an artist three-score years ago. The felon is being strapped down to a chair.
- Since there were no immobilizers in baby size, mother, father and aunt had to be busy keeping the youngster in place for a 100- to 200-second exposure! The immobilizer (iron head clamp) may be seen on the chair. The camera of 1890 had no shutter. The photographer made the exposure by removing the lens cap, marking time for a few minutes, and then replacing the lens cap.





● Portrait of a Golden Eagle, obtained after days of stalking. Agfa Superpan Press, f/8, 1/50th second.

Eagle-Hunt

By MAX GERLACH

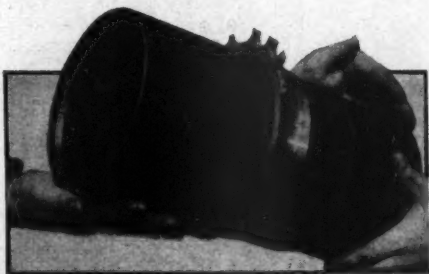
Photos by Thres Lions

WHAT is the toughest assignment for a candid camera shooter? A racing automobile? An European dictator? A social celebrity? All of these difficult subjects have been captured on film, leaving nothing new under the sun for the venturesome lensman except, perhaps, the personal affairs of the King of England, or the private life of the Mikado, Son of Heaven, Emperor of Japan.

But one other camera subject yet vies for honors as the most difficult in the world: the private life of a Golden Eagle.

Tame birds are not easy. Wild ones are next to impossible. But of all the latter, none is more camera shy and more reticent about revealing the details of its home life. Access is not obtainable by writing letters to influential persons or pulling political wires.

It was necessary, first, to build special equipment. This consisted, simply, of a



● Most costly part of the tele-camera—its 120 cm. (48-inch) lens.

box about four feet long fitted for a $2\frac{1}{4} \times 3\frac{1}{4}$ film pack holder. The lens was a 48-inch objective, set at infinity, so no focusing was necessary. Three nails tacked in triangular form on the top of the box created the viewfinder, along which the operator sighted his prey.

The $2\frac{1}{4} \times 3\frac{1}{4}$ inch camera from which the film pack holder and film was filched weighed a few ounces. The Big Bertha

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- The Big Bertha (above). This camera weighs more than 100 pounds.
- Hoisting the camera to a hideout prepared in the tree (left).



- Theerie and its occupants as seen by the 48-inch telephoto lens.

- The photographer's blind (right), 50 feet above the ground, is the mass in the center of the picture. The smaller mass to the left is the eagles' nest.



PEOPLE MAKE PICTURES PAY

More than 80 per cent of the free-lance photos sold today contain human beings somewhere in the composition.

By **GEORGE A. THOMPSON**

Illustrations by the Author

WHEN just starting to market photos, the writer once made a trip to Quebec on a vacation. Bright and early one morning he turned out of his hotel and with a great deal of pains proceeded to take shots of the early morning sunlight and shadows painting the quaint narrow streets of old French Quebec. The resulting prints were very satisfying to artistic souls but when it came to selling, they were complete washouts.

Other shots taken later at midday of

the same scenes but with people appearing in them, while not so attractive from an artistic standpoint, proved to be better sellers. Even as the best sunset picture can be improved by showing the silhouette of an overhanging branch cutting into the top of the picture in the foreground, so can street scenes and landscapes increase their earning power by the appearance of life in them. While the old hackneyed idea of showing a girl gazing over a landscape is not attractive to a great many

- More pictures of babies are sold for advertising and editorial use than any other single subject—including pretty girls. Any picture that sells must fill definite and immediate needs. These are best learned by studying the illustrations in various publications. The bathtub shot below was made with two photofoods, f4.5 at 1/60th second.



- *People make pictures pay—even if it's only their backs (right). Whether a scenic view, a news photograph or an industrial illustration, the rule is—include people. A daily newspaper bought this picture because it showed Cantonese reading the first reports (in their own language) of the bombing of Canton. Exposure /11, 1/5th.*



- *A float in the parade—certainly the candy manufacturer ought to be interested in such a picture! But why should he—when your competitor has a shot of the same float—not like a motionless exhibit in a museum—but surrounded with action, life and people!*



photographers, it has been the means of selling many a photograph.

Story telling pictures, groups or series about one subject are in great demand by picture-hungry magazines. These may illustrate interesting places, things or occupations, but in every case, human interest is a necessary qualification. Include human beings, animals or something that is alive.

Captions describing photographs are a necessary item. Many a good caption has sold an inferior photograph and many a good shot has come back home because of a poor or incomplete caption. Don't worry too much about the phrasing of the caption but just supply the facts in as condensed a manner as possible. Editors have their own ideas as to how captions should be worded and all they need for a lead is the where, why and what. News photos are worthless without the place and names of people involved.

Write each caption on a separate slip of paper and paste along the bottom of the corresponding print so it can be read from the front. Photographs that are to

be used for editorial purposes in newspapers and magazines do not require model releases.

The standard size is 8 x 10 inches. Prints need not be mounted. Large mats make for bulky packages and the difference saved in postage is no mean item. For convenience and neatness, prints should be mailed in manilla envelopes between two sheets of corrugated board. A 9 x 12 inch envelope for 8 x 10 inch prints works out very well. For utmost protection of the prints during transit the envelope should be marked, PHOTOGRAPHS, DO NOT FOLD OR BEND. Another self-addressed envelope of the same size, or slightly smaller, with sufficient postage attached for return, in case the photographs are not accepted, must be enclosed.

Some amateurs do not care to market their own photographs and turn them over to one of the picture services. These work on a straight percentage basis, usually 50% of the sale. Prints submitted to agencies, besides having the name and address of the photographer, caption, etc., should also have a number that corresponds with the negative. This simplifies future correspondence regarding model releases and requests for additional prints.

There are several market guides that are invaluable to the free-lance photographer. In these, the majority of the magazines, photo services and a good percentage of the newspapers are listed together with their needs and rate of payment.



Ship Photographer

By RALPH T. GARDNER

Formerly
Photographer on S. S. California

The life of a sea-going lensman is not all romance, excitement, travel and picture taking in strange places!

THE wanderlust and a camera—this combination led me into a life full of travel and picture taking, into romantic ports and the beauty of the tropics.

To my camera, a model "A" Leica, it brought thousands of exposures. I must have looked through that viewfinder and clicked the focal plane shutter no less than 25,000 times!

The U. S. is now building a new merchant marine and this means there will be need for sea-going photographers on every vessel carrying more than a couple hundred first-class passengers. But the job is no sinecure!



● Passengers frequently turn the tables and photograph their photographer. The author at Acapulco, Mexico.

From sailing time until arrival day the steamship photographer is on the go. There is no eight-hour shift for him. He takes out just enough time to eat and sleep, and towards the end of the trip he doesn't even bother about sleep. The final rush of business eliminates that.

An ocean voyage is a rare experience for most people. They want souvenirs of the big event, and nothing is better than a personal picture taken on board. Then, shipping companies are anxious for passengers to have mementos that will advertise the line and the cruise. And finally, the ship photographer earns his living by this means, for the job pays no salary. On the contrary, the photographer gives a percentage of his revenue to the ship.

There are three types of work to be done. Publicity pictures of noted travelers and foreign scenes are made for the steamship company. Roll films must be finished for those on board. And a constant stream of shipboard activity pictures must be produced and kept on display for passengers to buy.

Candid photos, enlarged to five by seven inches, and sold for 35 or 50 cents each, provide the main source of income. The photographer makes the round of the promenade and sport decks once or twice a day, takes a fresh batch of shots, finishes it up, numbers each picture, and puts the lot on display boards. Sales agents, lounge stewards or the novelty shop attendants take orders and collect for a ten per cent commission.

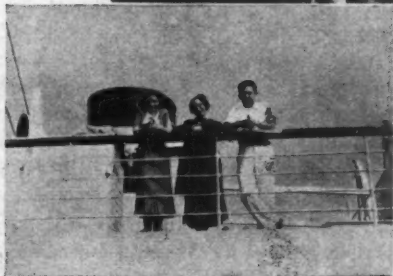
Steamship photography has one prin-

● These are the kind of pictures a ship photographer takes.



● The most popular scenic shot (above) ever made on the S.S. California.

● Large groups furnish the most income for the ship-board cameraman.



● Random deck shots are much in demand by the tourists.

● Participants like to take home pictures of masquerades and other horse-play.



ciple dogma: get all the faces you can. Take them with good expressions. Wait for interesting and typical poses—playing shuffleboard, walking on deck, watching water or deck sports, and talking with the Commander. Pictures must have memory appeal, with emphasis on self interest. And for every camera-shy person who dodges the lens there are two dozen who complain that they have been overlooked.

After a variety of experiences in photography, I fell into the steamship branch of the business in 1931 by meeting Arthur G. Wood, who had just returned from the last world cruise of the *S.S. Belgenland*. He told me that the *Belgenland* was about to go on a series of brief holiday cruises. Would I care to become his assistant? I would, and did.

Some New York theatrical people had decided to make a Show Boat out of an ocean liner. They hired professional entertainers, decorated the ship to Kingdom Come, and booked enough passengers for five profitable trips to Nova Scotia. We profited also.

The following summer Mr. Wood took me out as his shipmate again. That year the *Belgenland* went to Halifax and Bermuda on six short cruises. We made some money and had a lot of fun. Bermuda is worth a visit any time.

When autumn came, an opportunity arose for us to take regular jobs at sea. Through a concession firm, the Interstate Company, we were hired as photographers on the Panama Pacific Liners, and assigned to separate ships.

For five years I was the official photographer of the *S.S. California*, operating from New York through the Panama Canal and

up the Pacific Coast to San Francisco. I made thirty round trips in all, which took me through the Canal sixty times.

Earning a living in the travel business is an exciting life. The greatest problem is lack of space. For the novel experience of an occasional voyage, anyone can put up with this. Enduring it year in and out, however, is another story. And ship cameramen have had this added handicap, that steamships were built mainly before pictures began to count. Hence photographers often must labor in odd corners, bathrooms, and stuffy closets.

I worked for years in two unconverted baths, with benches and shelving built over the tubs, and with no sinks or fresh water in the rooms. Water was obtained and pictures washed in a deck pantry, close by, where stewards and stewardesses were in my way and I was in theirs.

Each room measured five and a half feet square. The first was used as the No. 1 darkroom for developing roll films, and also for drying prints. The second served for the storage of supplies, and for enlarging. See sketches on this page.

Roll films were developed by hand in a tray,

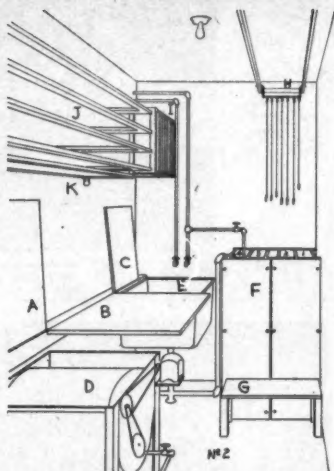
two at a time placed back to back. This is still the procedure on most ships. I experimented with a set of deep tanks, but they rusted out so easily from the least scratch in the enamel that I eventually threw them overboard. Finally I had a set of tanks made of redwood, 4 feet deep.

Due to the presence of the tubs, it was not possible to sit on a stool and put one's knees under the bench. From much standing came great weariness, and excruciating cramps in the legs. Ventilation, with the door closed, was conspicuously absent. It was a tough grind.

After nearly five years of this, a kind-hearted shore engineer agreed to remove the old tubs and install hot and cold fresh water and sinks in both rooms. Thus I was able for the first time to meet the stark needs of the job. I rebuilt bench and shelving in the No. 2 room to give space for a built-in corner desk.

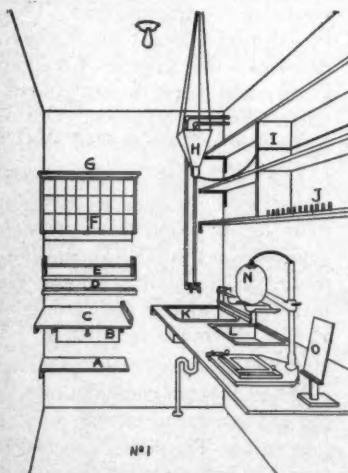
The No. 1 room was completely altered. The set of redwood deep tanks was at last connected

DARKROOM No. 1



- (A-B-C) folding tables hinged to wall beam, (D) power washer, (E) deep sink, (F) four deep redwood tanks, in pairs, for roll film developing (No. 1 contains Eastman concentrated tropical developer, acting in three minutes; No. 2, potassium chrome alum hardener; No. 3, acid hypo; No. 4 is the wash tank, water entering at bottom and emerging at top overflow), (G) portable step to permit access to deep tanks and to drying racks, (H) rack for drying roll films on hangers, (I) rack for ferrotype tins, (J) four cheesecloth stretchers in wall rack, each stretcher holding 25 five by seven double-weight prints, (K) red light for handling roll films. Fan over door, four-way electrical outlet on wall, and door-ventilator not shown. In this room, fan has electrical heater attached. Tanks are covered when not in use to prevent undue evaporation.

DARKROOM No. 2 ON S.S. CALIFORNIA



- (A) shelf, (B) lock drawer, (C) desk, (D) rack for stationery items, (E) rack for stationery, (F) pigeon holes for pictures, (G) shelf, (H) inverted safelight with OA glass and 40-watt bulb, (I) shelving, (J) spindles for rolled strips of negative, (K) sink, (L) hypo tank sunk in bench (cover not showing), (M) rack behind sink for trays, (N) Leica enlarger, (O) easel for exposure and printing record. Fan over door, four-way electrical wall outlet, and door-ventilator not shown.

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up with the water supply and drain, so that roll films could be finished in batches in accordance with the standard practice ashore. A power washer was installed for prints. Drying racks were built overhead, one for ferrotype tins, another with cheesecloth stretchers for double-weight enlargements, and a third for the hangers carrying roll films. Folding tables were hinged to the bulkhead (the wall) over the washer and sink.

Still rather cramped quarters, but at last I had a shop! And then the steamship line ceased operation!

I have long believed in white dark-rooms. In the main darkroom I always used a 40-watt bulb with an OA safelight turned up toward the deck-head (ceiling). This gave brilliant and even illumination, enough to read by. Every item in the place stood out in plain sight. Perfect darkness was obtained when the lights were out.

Compensation for the long hours in a stuffy, ill-equipped shop came in the rewards of travel. On the third day after leaving New York, our ships called at Havana, that shining city which seems as you approach it to be afloat on the surface of the sea. Then, after a two-day run over the Caribbean, we reach Cristobal, eastern port of the Canal Zone.

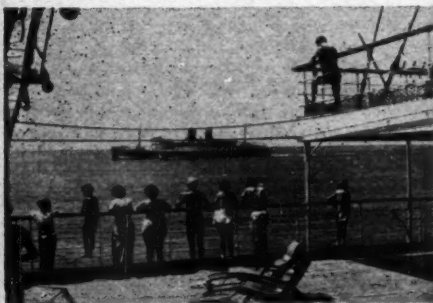
Going through the Panama Canal is an experience that never grows old. One

thinks of a canal as a ditch, but that does not describe our waterway across the Isthmus. The first half of the Canal is mostly an immense artificial lake, 80 feet above sea level, formed by damming up the Chagres River, which formerly flowed into the Caribbean. From this lake, a channel through the hills to the Pacific Ocean completes the avenue for ships.

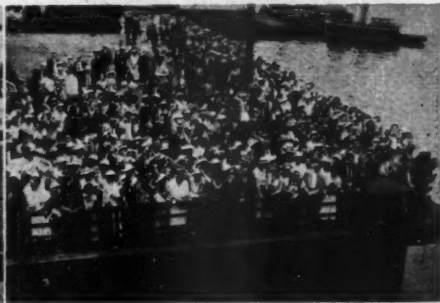
Passengers always are out bright and early for the Canal transit. Dressed in gay clothing, cameras in hand, they hang over the rail while the ship is lifted through the locks, winds among the emerald isles of Gatun Lake, and follows the twisting channel through Culebra Cut.

At noon a lunch is served on the first-class promenade deck. To the ship cameraman, this means a profitable opportunity for table group pictures. Some people occasionally object, but after other passengers obtain interesting souvenir pictures of themselves, even the most camera-shy individual usually changes his attitude. Once I lost a strip of film due to reticulation caused by the heat and scores of folks looked me up to tell me of their disappointment.

Out from Balboa there follow three perfect, sunlit travel days of ocean travel, with the Pacific as calm and beautiful as a turquoise lake. Acapulco, the next port of call, is not far from Mexico City, and



● A fine example of what not to take from the standpoint of profit. Why? There are no faces showing. The ship photographer makes such shots only for his own pleasure. In this scene, sister ships of the Panama Pacific Line pass in the Pacific, and passengers gather along the rail while the liners salute each other with a series of blasts from the deep-toned whistles. Taken from the S. S. "California."



● Sailing day pictures of a very commonplace character provide a standard source of income to the steamship photographer. What they lack in pictorial value, they atone for in sentiment. In fact, they are positively dripping with that valuable sales commodity. Every recognizable face means a possible sale to a friend or a relative on board.

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From Mexico our voyage proceeds up the coast of Lower California to Los Angeles Harbor, and terminates at San Francisco, 16 days after leaving New York City.

Save for occasional squalls in the Caribbean, or in the northern latitudes in winter, we rarely have bad weather. This permits a varied program of passenger entertainment, so that a gay holiday air prevails. Picture possibilities are unending.

Surprisingly, pictorial subjects along the route do not make up very much of the gross business. People like to look at travel scenes, but as a general rule do not buy many unless their faces are somewhere in the foreground. Other steamship men have reported to me the same experience. Income results mainly from personal pic-

tures: people snapped in action, or posed against backgrounds that are unmistakably marine.

Of the three Panama Pacific Line photographers, I was the only one who went in extensively for flashlight pictures. Not having a synchronizer, I used the "open and close" flash on a tripod, with the tripod legs held apart by a brace. Thus even when the ship swayed I could leave the camera for a moment when arranging a group or moving chairs about. One small flashbulb at *f*6.3 or *f*9 on Ultra Speed or S. S. Pan illuminated the standard groups. I have taken many shots across open decks at *f*6.3 showing large groups watching the masquerade party.

There is always a demand for flashlights taken at dinner. Usually these were made on order only. Often on the night of the Captain's Dinner, when fancy paper hats and noise-makers were the order of the day, I would go to the first-class dining room and be kept busy for an hour or more. With the place a bedlam, it was no



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small trick to keep out of the stewards' way, as they moved swiftly about with loaded trays, and at the same time focus correctly, arrange each group so that every face showed, and get the name of the person giving the order.

I rarely made two exposures of one subject, and almost never missed a shot.

Our route went from 40 degrees latitude at New York to 10 degrees at the Panama Canal. Thus we had constantly changing temperatures to fight. In the tropical zone the boys on the other two ships used ice water, which was piped into their shops. But I had none, and therefore relied on chrome alum. Roll films were developed swiftly in concentrated "soup", and hardened immediately in a solution of chrome alum before the emulsion had a chance to swell. They could then be fixed and washed at leisure.

The best solution of high temperature problems, I found, was in using any standard film developer in concentrated form so as to provide full development in a brief time—about three minutes at 80 degrees. The film emulsion does not have time to soften much in the short space of three minutes. For short stop the usual chrome alum hardener was used (4 oz. per gal. of water). After three minutes in the chrome alum short stop, the rolls went into the standard hypo solution for 15 minutes.

Miniature films called for more critical treatment. I carried ice water to the darkroom, chilled the developer, hardener and hypo to 70 degrees. Failure to do this a few times cost me valuable strips of film.

If only we then had had the fine-grain, high-temperature developers that have appeared on the market during the past year! They certainly simplify tropical processing, making it possible to work easily at 80 or 90 degrees.

During each sixteen-day trip I took from three to four hundred shots with the minicam, in addition to handling all the roll films I had time for. To keep track of this many small negatives required a system. I numbered the frames consecutively from the first to the last of the trip,



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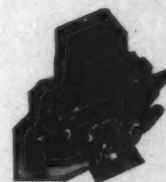
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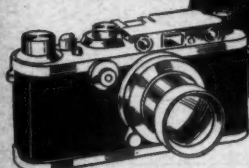
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disregarding the printed numbers on the film. With a tiny crow-quill pen, the figures were written with waterproof India ink on the film side between the frames. As I pulled the film through the enlarger, the picture numbers fell on a narrow white strip pasted on the left side of the paper holder.

Picture orders and exposure records for printing were kept on a ruled sheet. Into the first column would go the negative number, and next the letter "M" or "C" for medium or contrast paper, and the number of seconds needed to make a 5x7 enlargement. Where dodging was required, I wrote a dash after the all-over exposure and noted the additional number of seconds for the dense portion.

Steamship photography is now going into a new phase of dignity. Workrooms are being improved by shipping men who have discovered the importance of getting all possible publicity for their ships. Probably no cameraman in the future will have to endure what some of us have in the past.

Last spring the three ships on the U. S. Line were taken over by the United States Maritime Commission and were refitted for a new service to the east coast of South America, which has just begun. Eventually new ships will be built for the Panama Pacific service, but meanwhile smaller vessels will cover this route—too small to carry photographers. The *S.S. California*, on which I worked for five years, became the *S.S. Uruguay* and I retired from the sea.

So far as I know, only three American steamship lines now employ full-time photographers. The United States Lines has four such ships in the European Service, but on two of these vessels the job is definitely of little value. The newly-formed American Republics Line has three (the former Panama Pacific Liners) running to South America, and the Dollar Line employs a cameraman only on the President Coolidge. These photographers are all employed by the main office of each

operating company. On the Grace Line, the photographers are also the radio operators. Combination radio operator-photographer jobs also are employed by other lines, such as the Munson Line. Such ships do not have enough work for full-time photographers, and the picture-taking is only a side line.

However, in our rapidly changing world, steamship operators are becoming more and more aware of the publicity value of pictures. Every photograph that a passenger takes home with him and shows to his friends is potent publicity for the company.

"Lack of space" is the usual reason given by the operators for the absence of ship photographers on the smaller vessels. Should this be overcome, lucrative and interesting jobs will be opened up in our merchant marine for photographers who like to travel.

The ship photographer, like other members of the crew, must be a citizen of the country whose flag the ship flies. Exceptions to this rule have now virtually disappeared the world over.

America's ship-building program calls for the completion of a number of new fast liners in the next few years. They will undoubtedly carry photographers. The lure of travel will make these jobs much sought-after. But those who get them will be four-sided men: well versed in photo finishing, capable in the use of a machine like the Speed Graphic, dead shots with a miniature camera, and thoroughly familiar with darkroom technique. In addition they must know how to get on well with people, and be able to take the strain of shipboard discipline and long hours of work.

Their reward will be an income of \$40 or \$50 a week, the privilege of meeting many noted and interesting travelers, of photographing colorful lands far away, and of being frequently inspired by the strange moods of that ancient and mysterious realm—the sea.



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Action!

(Continued from page 18)

enough. The best negative turned out to be the one shown here in which the dancer is caught coming down in her leap.

The object in the javelin throwers, Fig. 2, was to show each athlete in a different phase of the action cycle. The men were brought up to the line, which can be seen in front, and focused upon. Then each took his position ready for the run, spaced to allow for this timing. They all started off together but reached the line at different times. The proper spacing of the figures and action was obtained only after five tries.

Grace in action was the theme for the nude leaping, Fig. 3. As in Fig. 1, the girl jumped from a plank covered with sand.

The ballet dancer made this particular figure at least ten times before we could decide the particular point at which we wanted to shoot. Then the camera was set up. The hard part was to click the shutter just at the desired point. Several times it was missed but this negative registered what we wanted. No filter was used.

In Fig. 4, the horse jumping, the object was to show action at its height, and good form on the part of the horse and the rider. As we knew where the horse was going over, it was easy to focus on the rails before the jump was made. Putting the camera on the ground increased the feeling of height. The low position also helped outline the horse against the sky, while the onlookers were lower and did not interfere at all with the action. The cloud was printed in from a separate negative.

"Safe at Home," Fig. 5, shows a close decision play at home plate. This picture took more thought and planning than all the others. At eye level the players appeared bunched together so we obtained a 10-foot stepladder. Sand was sprinkled around the plate, and the ball and runner timed from third base so both would arrive at home plate at the same time. A slide was necessary to increase the feeling of action through flying dust. The umpire

called the decision in advance, for if he waited until the play was completed, he would fail to get into the action. On six tries, our timing was off. The object was to make the decision so close it would be debatable. The "lucky seventh" negative was the one reproduced here. There is one chance in many thousands that you could get a similar play during a real game.

The polo players, Fig. 6, well illustrate the effectiveness of the pre-focusing technique. The ball was first placed, the riders brought up, and the camera focused. The players then went back a distance and rode hard at the ball. The first two starts were too tame. On the third try they rode so hard and fast that mallets became tangled and one rider's helmet flew off. The result would have been even more effective if the background were less intrusive.

Eagle Hunt

(Continued from page 60)

telecamera, taking the same size of picture, weighed over a hundred pounds.

The next problem was to get within shooting range, and for this the photographer had to hoist his Big Bertha into a blind 50 feet above the ground and become for days, a veritable eagle himself, living like one, and doing everything except fly in order to get his pictures.



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2 1/2 x 3 1/2 size, 200 for \$1
3 1/2 x 4 1/2 size, 150 for \$1

April Fool Camera

(Continued from page 53)

over to the chair immediately, while others will have to be either browbeaten or lured by subtle means.

When you are sure that everything is just right, press the electric button which operates the "hot seat", and if you have observed the directions you should have about the ultimate in candid pictures. The victim will move with incredible speed, and upon alighting will give a splendid version of the Whirling Dervish. After a loud howl, a few gazelle-like hops about the room and threats of bloody murder against the perpetrators of such photography, the victim's composure slowly returns and he is as eager as you are to watch the next person photographed. If anything, his laughs will be louder and longer than your own.

Eventually most of your guests who have had their picture taken will have congregated in the room where the remaining victims are to be photographed. It will have become so funny to them now that you will hardly be able to restrain them from bursting into gales of laughter, but unless you keep them from chuckling at apparently nothing, the next subject of your April Fool picture will very likely become suspicious. When the picture is taken their pent-up laughs and giggles are guaranteed to rock the pictures on the walls.

Margaret Bourke-White

(Continued from page 50)

sleeves rolled up and was deep in a job which was to keep her going at top-speed for over 18 hours—a job to tax the energies of two ordinary male lensmen.

First move was to ask the hotel for their brightest bell-hop to help tote equipment and cartons of flash-bulbs. For Miss Bourke-White is a flash enthusiast of the first water.

"With flash bulbs," she says, "you can stop movement and get natural attitudes in your subjects. To give flashlight pic-

tures greater solidity and depth, I frequently use two or even three flash bulbs, held by myself and assistants."

She discussed the high spots with officials in charge so as to line up all the "must" shots. Then as she went along she used her imagination to capture the more revealing facets of the social function—facets to show the personality and temper of the people involved. That is why the pictures and notes she took in Omaha made such an interesting and revealing story when they appeared in *Life*.

The job called for tact and patience. Every group has its favorite princess or countess or subject idea. It calls, also, for endurance: daytime shots, before-dinner party, dinner party, after-dinner party, King's party, and behind-scene shots, Coronation Ball shots, group shots and portraits. She had to hold people for groups, send for others, get costumes out of lockers, and keep celebrities happy with a running fire of conversation and cheery organizing.

Miss Bourke-White took well over a hundred pictures and frequently had to stop and load film holders in a changing bag. The party was still going at dawn, and it was a very tired photographer that crawled into her hotel bed at 5:45 a. m.

"Equipment?" she says. "Well, there's a lot of it. I use a Linhof camera for most shots, with Zeiss Tessar lenses, each equipped with its own magnet for synchronization. I've standardized on Washash Superflashes, and use mostly No. 2's and 3's. I take a couple of big cartons along on an assignment like this and often use several on a single shot."

"I use a Jacobson synchronizer for most of my work now. Other cameras I take along are a Contax, Zeiss Ikomat A and a Rolleiflex—just to make sure I'm equipped for every type of shot. Wherever possible, I use a tripod. I use Agfa Superpan Press cut film, and Eastman S. S. Panchromatic film pack. I save the film cartons—they're usually the only pieces of paper around for note-taking, and I usually come back from a job with a stack of notes to be

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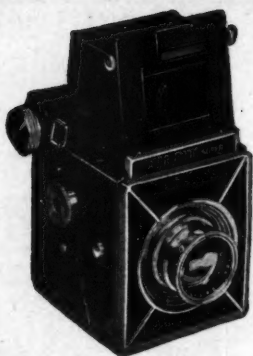
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copied and pieced together for editors and rewrite men."

How Miss Bourke-White attained her present niche in photography goes back to her senior year at Cornell University. "I was broke," she explains, "and having played with photography as a hobby, I tried selling campus photos. They sold and I turned pro right after graduation."

Starting with steel mill pictures in Cleveland, her work attracted the attention of *Fortune Magazine's* editors and then as staff camera-woman and associate editor, she photographed every major U. S. industry, the Soviet Five Year Plan, Brazilian coffee-growing and U. S. air-transport. For *Life Magazine*, on whose staff she has been since its birth, she has photographed life at government dams, Supreme Court, the Senate, the Louisville flood, northern Canada, Hollywood, London, Paris, Hungary, Czechoslovakia, and a dozen other news-spots.

"Yes, I like party assignments," she confesses, "but there's so much to catch in such a short time—you get pretty weary. I prefer news assignments. Best of all, I like the documentary-news type of assignment where you record a little-known phase of contemporary life and clearly tell a story in camera film. That's really photography!"



● "You'll never make it . . . better shoot at $1/200$ th!"

Print Faults

(Continued from page 29)

quate fixing or washing; weak hypo solution lacking in hardening powers; unclean tins.

(7) Ferrotyping spots. Caused by unclean tins or inadequate ferrotyping. The dull spots are noticeable when the print is held edgewise to the light. Wash tins with warm soap and water, rinse, and while tins are wet, apply and squeegee the prints.

(8) Buckling. Caused by forced or uneven drying, particularly when the tins are placed under a heater or electric fan. Cure: Dry more slowly or cover the ferrotyped prints while drying with moist blotters.

(9) Dust particles in the enlarger cause spots on prints, especially when the dust spots are on the glass negative holder plates, or on the condenser lenses.

(10) Streaks due to uneven development. Each print should be immersed gently but swiftly in the developer.

(11) Reversal of print. A negative image appears and the white margins go black. Caused by exposure to light after the print is partially developed.

(12) Image reversed. Caused by the negative being turned over. This is a legitimate device often resorted to when it is desired to reverse a composition. Ordinarily the rule either in contact printing or enlarging is to place emulsion to emulsion. (Not to be confused with No. 3 in which the sensitive paper was reversed.)

(13) Fogged print. Highlights and margins are gray instead of white. Usually caused by light leaks in the darkroom. Other causes are use of old, out-dated paper. Excessive development also may cause fog.

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The Press Goes Pictorial

(Continued from page 20)

a shutter speed of 1/395th of a second, using Agfa Superpan Press. He develops in a fast-working metol-hydroquinone carbonate of soda developer.

Frank says that working at this shutter speed does not stop all action, as though the subjects had been frozen in mid-air, but leaves the suggestion of motion in the prints. On the other hand, he says, the motion is stopped enough so that the detail, such as that of the contorted faces of boxers, remains clear.

"But are all press photographers beginning to think in terms of beautiful sunsets and soaring seagulls? Not by a long shot.

One day, the city editor of the world's greatest daily newspaper discouraged by tons of fuzzy pictures, decided to show the boys how it should be done. He borrowed a Speed Graphic and set off for Manhattan's "Garden" where an ice show was in progress. The lights are often bright enough to shoot without a flash.

Working under the same conditions as the other press photographers, some of whom recognized him, and, sensing his purpose, did some nifty sniffing on the side, the city editor took his pictures. But he didn't use f/3.5. Not on your life. He was after detail. He shot at f/6.3.

There was enough sniffing in his immediate vicinity to chill an ordinary human, but not a city editor.

The latter took his pictures back to the office and developed them.

"I didn't burn them up. No 2 minutes in hot-soup D-72—I put the film in a slow developer, and took half an hour at 70°."

The finished pics were hung on the bulletin board. You could see the shoe laces on the skaters' shoes and the scratches in the ice where the skates had bit. Every piece of detail was there.

"Well, did any of the press photographers try your way next time?" The editor looked quizzical. He seemed to be asking if anybody had ever changed the mind of a hard-boiled press lensman.

That's the desk side of the story. Tuning

in on the street side brings out something like this.

"What!" and the lensman laughs, "f6.3 in the Garden? That's fine. That's just wonderful. So I grab a taxi, pay double fare and beat it like hell back to the office. The minute I come, having run up the stairs because the elevator wasn't at the landing, the city editor yells, "Where in hell are those pictures? What ya been doing. Look at the clock! These pics are for today, not next week! Hurry up! Hurry up!"

You think they don't talk that way. You think they talk like that only in the movies. You don't know those guys. All right, so I come over to the city editor's desk and say: "Boss, I shot these pics at f6.3 and it will take an hour and a half to develop, dry and print them, and then if they aren't any good I can't go back and get any more because the show will be over by that time."

"What do you think will happen to me? The picture may be hung in a salon, but you can be sure I'll be hung up for a new job. Hell's bells, I was handling a camera before that guy was higher than a typewriter."

And the city editor, who knows when he is beat retires into his slot, not to open his mouth—until next time.

Camera Holds

(Continued from page 40)

ates the shutter must be able to do so without jarring the camera. When the shutter release is on one end of the camera body, there is a tendency to push down on that end of the camera. This can be avoided by gripping the camera between thumb and first or second finger.

Do not jab the shutter; squeeze it gently but firmly. Practice using the cable release and also the body release. Take a breath and hold it until several seconds after the shutter has been pressed.

Some individuals are "gun shy" and jerk the shoulders or head at the moment they operate the shutter. Take a half

Bass Bargainingram

Vol. 29, No. 3

MARCH, 1939

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dozen practice shots every day without film in the camera. Pick up the camera, adjust it unhesitatingly before the eye, and press the shutter. Put down the instrument and repeat the process until perfect camera operation becomes second nature and as instinctive as walking.

The Camera Turns Back

(Continued from page 59)

"The operator's pathway," begins a Victorian treatise on photographing children, "is not always strewn with roses. . . . Neither are children always docile and obedient; sometimes extreme youth and natural tendency towards mischief and naughtiness in some desirable subject, will tax to the utmost all the ingenuity and patience of one whose mind is intent upon producing a picture, the planning of which has already cost considerable time and thought." Then follows some handy advice. Keep some candy in the studio. Promise it to the child, and you will get a happy expression. Then if you want to catch him crying, promise the candy, offer it, but take it away again. By this nasty trick you will be able to get the desired result. The photographer has to indulge in bribing, "and his main tools are bonbons, cakes, and pennies!"

In criminal photography, however, this method was hardly applicable. The problem was essentially the same, but bonbons and birdies wouldn't work. Two or more sturdy cops had to assist the photographer. The only thing one could say about the sitter shown in the woodcut is that he must have been a tough "baby" all right.

The first studio specializing in photographing criminals was opened in Chicago. There was no elaborate formula for catching the culprits in characteristic expressions. The police photographer was glad to be able to snap them at all.

The Chicago photographic file or rogue's gallery was notorious for the number of pictures that disappeared mysteriously from it. A criminologist in charge in New York, Thomas Adams, determined that it should not happen in his city, so he

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ordered a special vault constructed to house the valuable pictures of the bad.

The interest of criminologists in photography definitely started in 1869 when the Academy of Science in Paris heard a report from a country doctor named Bourion. Bourion claimed that he had photographed the fundus of a murder victim's eye and that the image of the murderer appeared on the plate. This thesis was based on the belief that the last impression of a slain person would be preserved. Since in this case the last image was that of the murderer, he said that photography could offer the police invaluable clues.

The quaint theory was disproved, only to be recently revived, but the well-meaning country doctor was correct in predicting that photography would become an important police weapon. Today, law officers could more readily part with their pistols than with their cameras.

Blind Students Take Pictures

(Continued from page 49)

dependence. If blindness is a handicap they refuse to concede as much in their conversation. Note this reason advanced by one of the boys for his interest in photography:

"The idea of a blind person taking a picture seems to amaze a lot of people, and I get a kick out of that."

Underlying such comments as this, however, was a more serious side.

Quite understandably, they like to flabbergast their sighted friends by their ability to do the difficult, but there was more to it than that. I got the definite impression that photography gave them a form of compensation for the sight that was denied them. It gave them, if you will, a tool of sight, and the ability to capture with their hands scenes that could not be envisioned, permitting them to capture in film, segments of the unseen world about them.

"You should see their faces," said Mr. Mitchell, "when I describe to them the



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pictures they have taken. They have all they can do to keep still, they are so excited."

The task of working out a course in photography was no easy one and months of preliminary study were required before the course could be begun. This preliminary work on the part of Mr. Mitchell and Dr. Merle E. Frampton, Principal of the Institute, not only prepared the basis of the course in this particular school but for other schools for the blind also.

Incidentally, that the project was possible at all is due to the dependability of photographic products on the market today, for the mechanics of the course depend entirely on rigid standards of materials and consistency of quality.

The course was conducted over an 18-weeks period, with one 50-minute laboratory class a week. The first week's class was, strangely enough for blind students, an introduction to light. An analogy was shown between light waves and heat and sound waves. By means of a photo-electric cell, for that matter, the students made the acquaintance of light waves. The cell was connected to a bell. By cutting off the light reaching the cell the bell rang. The blind students in turn passed their hands in front of the electric eye, and as they did the bell rang.

With such groundwork as this, the group went on to a study of cameras, film, and all the other paraphernalia of photography. Each student was given a box camera and was carefully trained in the handling of it. The only difficulty encountered, according to Mr. Mitchell, was the winding of film. Because of the varying diameter of the film spool as the film was unwound, no definite number of turns could be prescribed, and the only way of getting around this was by incessant practice using paper instead of film. However, even this troublesome problem was solved as practice developed dexterity.

At the end of five weeks the first field work was begun. Each student was given the box camera to take home with him for the weekend, together with a roll of film,

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116 size. It was up to them to show how well they had learned their lessons of the preceding weeks. At the next class the films were developed and the great majority were found good. Indeed, almost 100 per cent so.

"They did at least as well," said their instructor, "as the average novice with the use of sight would have done. And it is interesting to note that the totally blind members of the group did as well as those who had partial sight."

The secret of their success is one that might well be taken to heart by every photographer. Handicapped as they were, they had to use extreme care in every step they took. For the same reason, it was necessary for them to work well within range of the camera and film potentials.

Box type cameras were employed because of their fixed-focus feature. However, to allow a safety margin even here, ten feet was fixed as the minimum distance from camera to subject. Verichrome film was specified because of its wide lati-

tude, yet here, too, limitations were set. The class was told to take pictures only when the sun was shining—the blind can tell this and also the direction of the sun. Moreover, picture-taking was limited on sunny days to the hours between 10 a. m. and 4 p. m. Also, it was explained to them that they were not to face into the sun but to work with the sun at their back. In short, they were well grounded in the rudiments that are certain to result in pictures but which are overlooked by so many beginners.

As we have said, the group came back with well-exposed pictures. Probably more remarkable, however, is the work they did from that point in developing and printing them.

Here again, uniformity of procedure was the order. After practicing tray development in the classroom, with paper used in place of film, the students were allowed in the darkroom. Three trays were set out for each student. One contained developer made from MQ tubes,

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the simplest form available so that the students could follow the same procedure at home without trouble. The second tray contained water and the third hypo. With the developer at approximately 65 degrees the films were developed for five minutes, the timing being checked with a timer equipped with Braille dots. Following this came the usual washing, fixing and final washing. All of the negatives were of normal density. The only defect was that found in the roll of one student who had got finger-prints on the emulsion.

The next step, printing, was carried out according to a pre-tested, standardized procedure. Azo paper, normal, was employed. The negatives were placed with it in printing frames, two feet from a 60-watt bulb, and a 10-second exposure was given. Again MQ was used as the developing agent. The prints were consistently good.

With the pictures finished there came the big moment in the class, when the photographs were described to the boys. One of the group was especially happy to learn that his pictures came out well. It seems he had made a small wager with a "sighted" friend who had predicted failure.

"The whole procedure," said Mr. Mitchell, "consisted in following conservative photographic practice. Taking the pictures as we did, we were pretty sure to get a normal latent image on the film. Our developing procedure was such that we got a negative of normal density. Working from this, by the use of normal printing paper and following the printing procedure we did, we obtained consistent good results."

This year's class, which started at the beginning of the second semester, in February, is working to surpass the record made by the 1938 group. However, the first class has now formed a Camera Club and plans to go on to bigger and better things. Under discussion at present are such projects as motion pictures and enlarging.

High Key Portraiture

(Continued from page 26)

mately what the film in your camera can see and record.

Most of the failures in high key can be directly attributed to the inability of the human eye to recognize the short range of tones necessary for this type of work.

Now as for lighting the subject. You must have plenty of light on the background. I personally recommend a background of some sort of blue-white stipple work. Generally speaking, I use two or three large photofloods on the background. Now by use of the visual filter, the face is lighted to a shade darker than the background. Experiment to discover what this gradation must be. I advocate the use of spotlights and perhaps a general flood also, as front lighting. Photofloods are excellent on the background, but I recommend undiffused mazda light on the front.

The shadows in the eyes, under the nose, below the chin and in the folds of the garments must be very light. Dense shadows, unless very small in area, increase contrast and take the picture out of the short range of high key. Light your picture in any way that you like, but trust the visual filter, and do not trust your eye.

Allow full or slight over exposure and development of the negative. But remember that the success of a high key print depends on the lighting of it for those gradations of tone, so delicate that the normal eye cannot perceive the tones in the subject until it is viewed through a blue glass. In printing, keep the flesh tones light and the accents black. If a negative does not produce a true high key print, the trouble most likely is in the lighting of the subject and the best solution is the shooting of it over again, profiting from the knowledge of the first negative and what it reproduced in terms of what the eye saw.

Fig. 9 (page 27) was made with a Speed Graphic, 4x5, Zeiss Tessar f4.5 lens, 13.5 cm. The overall lighting came from a window on the right side. One No. 1 G. E. Photoflash in Mendelsohn Speedgun, f16 at 1/200th second.



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Leonard Misonne

(Continued from page 47)

added disadvantage was the necessity of making a dia-positive (positive transparency) and enlarged negative.

Misonne next tried the Bromoil process, which is more purely photographic and permits working from an ordinary bromide enlargement. An enlargement of the desired size is made, fixed and washed as usual, except that no hardener is used. Then it is put into a bleaching solution for about three minutes or until the image is reduced to a faint brownish yellow. After fixing and washing, it is ready for the inking.

The oil processes did not meet Misonne's approval and he set to work to perfect an intermediate method that would provide all the advantages of straight bromide printing with the control available in the use of oil pigments. The result he now calls Medio-Brom and it is the inking of an unbleached bromide.

THE Medio-Brom process is simplicity itself. An ordinary enlargement is made, but it is developed only to about four-fifths of the desired density. The print is soaked in warm water until the gelatin swells and then ink is applied with a stiff-bristled brush as in the oil pigment or Bromoil process.

The chief problem is obtaining sufficient swelling of the gelatin to cause the paper to absorb ink freely. He recommends use of a printing paper that has a soft gelatin surface, the softest possible. Give the print about 4/5th development. If an acid short-stop is used, rinse the print before immersing in the fixing solution. The latter should be *plain hypo, without any hardener.*

Wash and soak until there is an appreciable swelling of the surface. Use a slow drying ink. Apply freely. Give the paper all the ink and more than it will take.

As in the usual working of the bromoil process, there are two very distinct phases: the inking and the working on the dry print. This last consists almost entirely in an accentuation or lightening of the high-

(Page 90, please)

PHOTOGRAPH CONTEST CALENDAR

Open to	Subjects	Prizes	For copy of rules, write to	Contest Closes
Everyone	Pictures taken with Rolleiflex or Rolleicord cameras	First prize \$200. Total of 500 prizes offered	Burleigh Brooks, Inc., 127 W. 42nd St., New York, N. Y.	Aug. 31, 1939
Everyone	"Photo Date." See January MINICAM, page 56.	First prize \$50; 2nd prize \$25; 3rd prize \$15; 4th prize \$10	MINICAM MAGAZINE 22 East 12th St., Cincinnati, Ohio	Extended to April 1.
All amateurs	Pictures taken at Philadelphia (Pa.) Zoo.	Two Rolleicord II cameras and other prizes	Philadelphia Zoo 34th St. & Girard Avenue Philadelphia, Pa.	April 23
New England amateur photographers	Outdoor pictures, interiors, and action shots (Entry fee, \$0.50)	Three \$100 prizes, three \$50 prizes, three \$25 prizes	Director, New England Photographic Exposition Boston Garden Boston, Mass.	April 6
Anyone	Pictures taken at New England Photographic Exposition	1st, \$150; 2nd, \$75; 3rd, \$35	Director, New England Photographic Exposition Boston Garden Boston, Mass.	April 13, 15 only
Amateurs only	Novel and human interest pictures	One \$15 prize; one \$10 prize; three \$5 prizes	Mechanix Illustrated 1501 Broadway New York City	New contest each month



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PHOTOS BY KENNETH M. SWEZEY



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Leonard Misonne

(Continued from page 88)

lights by rubber or stump. In the new process, this is extremely simple. Working on a firm base it is as easy as it is difficult when working in bromoil.

It is necessary to use inks that do not dry too fast in order to be able to retouch the print after a day or two. This is essential because frequently faults are not realized during the inking. The ink should be removable entirely by means of a soft gum eraser to create highlights. This permits the worker to create pure whites where desired. A strong effect may be given by just a touch of the eraser to bring a pure white to a small part of the sky or other areas. This highlight frequently is the key to the entire effectiveness of a print.

For many people, Misonne furnished the solution to the question, "Is photography art?" He produced prints measuring up to the esthetic standards of the traditional mediums.

Many pictorialists aimed at the same standards, but succeeded only in depriving their work of all photographic characteristics. They sacrificed photography on the altar of art but Misonne remained a photographer while becoming an artist.

Home Posture Clinic

(Continued from page 41)

silhouette. With a black crayon we made a mark on the print to follow the spinous processes of the vertebrae to show the lateral curvature.

A fast film is desirable for this work so the lens may be stopped down enough to get the outline of the child in focus as well as the lines on the screen. The Leitz Summar lens was stopped down to f6.3 and all exposures made at 1/100 second after a careful meter reading. We used Agfa Superpan Supreme, developed in D-76, to produce a contrasty negative.

The cost was only 1.6c a picture. As a result, corrective exercises and games have been prescribed for individual children. We plan to repeat this survey twice a year to check improvements in posture.

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Evansville, Ind.	Smith & Butterfield	Mar. 6 to 15	American Photography
Green Bay, Wis.	Green Bay Camera Club	Mar. 15 to 30	3rd Annual Fox River Valley
Hamilton, Ont.	Hamilton Camera Club	Mar. 20 to Apr. 3	6th Annual Canadian
Madison, Wisc.	Memorial Union, Univ. of Wisc.	Mar. 5 to 24	6th National Collegiate
Marietta, Ohio	Wagner Art Shop	Mar. 6 to 15	American Photography
Massillon, Ohio	Massillon Museum	Mar. 20 to 29	American Photography
Milwaukee, Wisc.	Milwaukee Art Inst.	Mar. 17 to Apr. 1	5th International Milwaukee
St. Petersburg, Fla.	Federal Art Galleries, 415 Third Ave.	Mar. 6 to 26	4th St. Petersburg Annual

New Camera Horizons

(Continued from page 37)

termed a "trade risk" so we will pass over it lightly.

You *can*—leaving apart the question of whether you *may*—take candid shots indoors using the new films and an *f*4.5 aperture if there is enough light to read a newspaper comfortably. You can function with somewhat less light if you are willing to accept slight underexposure and the necessity for compensating by over-de-

velopment, plus somewhat increased grain. You can't shoot by those "lights intime" but then who the heck would want to? For safe society in so-so light use a shutter speed ranging from 1/30th to 1/10th and don't rock the boat. One of those shoulder-brace straps will help steady the hand during these longish exposures.

Snapshots at twilight or even a bit later are particularly delightful and, in the old days, came out with big juicy messes of underexposure. Shoot now at *f*4.5 or even *f*5.6 with shutter speeds ranging from

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1/60th to 1/20th, depending on season of
year, sky conditions and what-not.

Another field now wide open is the controlled shot with filters. If you're at all like me, you've always wanted to take storm scenes, thunderheads over a hilltop, and to mess around generally with filters under circumstances you know darn well won't pan out. The trouble always was that although the available light was enough for ordinary shots, by the time you got through figuring the filter factor you were back in the time-exposure class. Time exposures aren't always practical and, anyway, I never have a tripod along when I need it. So those shots went lost.

Those days are gone forever. Not only do the new films have the added speed to permit instantaneous exposures even with filters of moderate depth but they also possess an increased sensitivity in the region of the colors we generally try to bring out through a filter. As a result, filter factors themselves are lower than with the older films.

In the following table will be found filter factors as determined for the new Eastman emulsions.

FILTER FACTORS

Kodak Plus-X, Panatomic-X, Super-XX Films

Filter	Sunlight	Tungsten (Photoflood)
N1	1.5	1.5
N2	2.0	1.5
N3	2.5	1.5
N4	3.5	2.0
K1	1.5	1.5
Kodak Color Filter.....	1.5	1.5
K2	2.0	1.5
G	3.0	2.0
X1	4.0	3.0
A	7.0	4.0
B	6.0	6.0
C-5	5.0	10.0
Kodak Pola-Screen Type 1A..	2.0	2.0

Fast films are sensational news and headline catchers, but equally, if not more important are the new fine-grain films, of moderate speed, such as Agfa Superpan Supreme, which, for the first time, combines the minifan's dreams of fine grain and high emulsion speed.

Those who were delighted with the results obtainable with the Eastman Panatomic emulsion are now being doubly thrilled by its two offspring: Panatomic-X with finer grain at no speed loss, and

Plus-X, which combines the grain fineness of Panatomic with the emulsion speed of S. S. Pan.

The new high speeds extend the miniature camera horizon, but the new fine-grain removes the bogey man from the scene. The hitherto impossible shot is now within grasp, and so also is print quality of a kind with which, unfortunately, we until now have been largely unfamiliar. Enlargements to 10 times with Panatomic-X are a cinch. As a matter of fact, the image does not really start to break down much before 20 times magnification. At 20 times enlargement a circular image $\frac{1}{8}$ of an inch in diameter will grow to just short of $2\frac{1}{2}$ inches in diameter.

Put still another way, if your negative will tolerate magnification from 15 to 20 times, you can with ease make enlargements up to 11x14 inches from small sections of a 35 mm. negative!

Thus we find that the film companies, off to a slow start, have finally overtaken and left far behind the lens specialists. It is too soon to cart away the corpse, because research in optics may quite possibly turn up new materials for lens making, superior in refractive power to glass and making possible lens speeds far in excess of those currently available; but this much, at least, is certain: Modern cameras and future cameras will derive the bulk of their increased efficiency from progressively improved films where no problems of optics and costly individual workmanship exist to hamper experiment. Fine lenses will always be made for specialists and fanciers, but photography as a whole will look to improved and still further improved films for still newer horizons to reach and conquer.

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ROLLEICORD II, F3.5	... 53.50

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 The brighter, whiter light of G-E MAZDA Photoflood lamps lasts for dozens of pictures. Two No. 2 G-E Photofloods and new "super" type high speed film permit snapshots at night or indoors ... even with a box camera. And they're swell for home movies!

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Photography

TRADE NEWS

Makeup for Color Portraiture

MINER'S, in co-operation with the manufacturers of color film, have developed a special make-up to be used with color film, and have simplified its application into six easy steps. A new booklet, "Simplified Make-up for Color Film" will be sent upon receipt of a 3c stamp addressed to Miner's, Inc., Dept. Y-5, 12 East 12th St., New York, N. Y.

Foot Switch Has Many Uses

THE LAFAYETTE FOOT SWITCH (\$2.95), introduced by Lafayette Camera Corporation, 100 Sixth Ave., New York City, is intended primarily for use with enlargers but has several other highly practical applications in photographic work.

When used to control an enlarger, both hands are left free for "dodging" or other operations. In addition its manipulation cannot possibly cause movement or vibration of the enlarger head, a not uncommon cause of fuzzy prints with enlargers having a hand switch suspended in the line cord.

Other applications include the control of momentary auxiliary flood or spot-lighting to obtain special effects in making time exposures of still life; to ignite flash bulbs screwed into flood-lamp equipment where a synchronizer is not available but close coordination of flash and shutter are required; momentary control of dark-room lamps, etc.

The switch is connected to any equipment by simply plugging the line cord of the equipment into a receptacle provided by the switch, and in turn plugging the line cord of the switch into a convenient lighting outlet. The switch is "on" only when the pedal is depressed, snapping "off" instantly when the foot is removed.

Carbro Printing

THE DEVIN Colorgraph Company announces the publication of a new booklet on the making of color prints by the tricolor pigment process. This process is also known as carbro.

This new booklet presents a greatly simplified routine for the production of fine color prints. It brings together, under the covers of a single booklet, new developments in tri color pigment printing which have either appeared in widely scattered articles only, or have not been published at all. It is for the amateur as well as the professional.

Many of the methods and formulas included in the booklet were developed by years of research in the Devin organization, manufacturers of the Devin one-exposure tricolor cameras, and Devin Tricolor pigment tissue. Among these formulas is the Devin single-bath bleach.

The booklet is 35c at your photographic dealer or from the Devin Colorgraph Co., 305 East 43rd St., New York City.

Reelo 35 mm. Tank

The Reelo 35 mm. Developing Tank, distributed by E. Leitz, Inc., has now been reduced in price to \$4.50.

It is made throughout of chemical resisting bakelite. The all-important part of the tank (upon which much of its efficiency depends)—the reel—is a single unit and non-adjustable. This means that the film groove can never get out of alignment nor can the distance between the grooves vary.

Information on the Reelo 35 mm. Developing Tank may be had from E. Leitz, Inc., 730 Fifth Avenue, New York City.

Cabinet Darkroom

NOW—all darkroom work can be done in one room . . . on one cabinet—and when finished the lights turned on and the work cabinet changed into a handsome piece of furniture.

The "Felice" Home Darkroom Cabinet is finished in either walnut or mahogany, with lacquer or semi-lacquer gloss surface. Working tops are large enough to take four standard trays. Interior is fitted with large shelf, for storage of trays, squeegee plates, etc. Below this there are four drawers, equipped with holders for paper, film, negatives, and various camera accessories.

The base is a storage compartment, large enough to take care of bottles, chemicals and other equipment. Comes in two sizes; Junior Cabinet takes trays for pictures 8" x 10"—price, \$34.00; Senior Cabinet for trays 11" x 14"—price, \$39.00.

For illustrated folder showing the "Felice" Cabinet's many uses, write G. Gennert, 20 West 22nd Street, New York City.

Camera Price Reduction

New list prices of the following cameras are announced as follows:

	Formerly	Now
6x9 cm. Certix Roll Film Camera, f/4.5 in Compur delayed-action shutter	\$27.50	\$25.00
6x9 cm. Certix Roll Film Camera, f/4.5 Vario shutter	18.50	17.00
S. S. Dolly Tassar, f/2.8 Compur delayed-action shutter	57.50	54.00
S. S. Dolly Xenar, f/2.8 Compur delayed-action shutter	47.50	44.00
S. S. Dolly Meyer, f/2.9 Compur delayed-action shutter	35.00	33.50
Dollina "O" with Certar f/4.5 in Vario shutter	21.00	19.50
Dollina "O" with Certar f/4.5 in Compur shutter	32.50	29.50
Dollina II Radionar f/2.9 in Compur Rapid shutter	55.00	52.50
Dollina II Xenar f/2.8 Compur Rapid shutter	65.00	60.00
Dollina II Tassar f/2.8 in Compur Rapid shutter	75.00	67.50
Dollina II Xenon f/2 in Compur Rapid shutter	80.00	75.00
V. P. Dolly, f/4.5 in Vario shutter	17.50	15.00
V. P. Dolly, f/3.5 in Compur shutter	27.50	25.00
Foth Derby, f/3.5 Anastigmat lens	23.75	21.50
Foth Derby, f/2.5 Anastigmat lens	33.50	27.50

Burleigh Brooks, Inc., 127 West 42nd Street, New York City, is the U. S. distributor.

New Speedgun Model for Focal Plane Shutters

ANSWERING THE NEED for an accurate synchronizer for focal plane shutters, Speedgun Corporation of America announces the new Speedgun model G-2 for the focal plane shutters of the Speed Graphic and Graflex cameras.

The new gun fitted to a Graflex camera allows the photographer full use of the convenience of reflex focusing, and gives him the advantage of flash synchronization at the same time.

Speedgun G-2 sells for \$17.50 installed at the factory. For further details see your dealer or write to the Speedgun Corp., Bloomfield, N. J.

Enlargement Timer

THE HANKSCRAFT automatic electric timer controls light time while making enlargements, leaving the operator's hands free for print control, developing prints and attending to all dark room details. The timer is plugged into the electrical outlet. The time is dialed just as a dial telephone is operated.

The enlarger light is on from the moment the dial is rotated. Priced at \$10, it is manufactured by the Hanksraft Company, Madison Wisconsin.

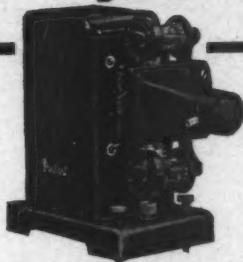
X-Acto Etching Knife

HERE'S A NEW kind of etching knife, the X-ACTO, for retouching negatives and prints. It is controlled as easily as a pencil point for the most delicate work. Complete with six blades, it retails at 50c.

An instruction book explaining the use of X-ACTO Knives for retouching negatives and prints, is supplied with each knife. Free copies of this handy and informative book, "Retouching Negatives and Prints," may be had by writing to the Raygram Corporation, 425 Fourth Avenue.

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DIAFANT MODEL O—35mm—100-watt, F4.5 Parastigmat lens, \$49.00.

DIAFANT MODEL I—35mm—250-watt, F3.5 Omar lens, \$69.00.

DIAFANT MODEL Via—2 1/2 x 2 1/2—250-watt, F3.5 Omar lens, \$69.00.

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Leica C, F3.5, Good.....	35.00
Leica G, F2, with case, Very Good.....	110.00
Leica G-38, F2, Reg., with case, Very Good...	139.50
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Leica E, F3.5, Registered, Very Good.....	54.50
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Super Baldina, F2.9, Compur, Very Good...	39.50
Super Baldina F2, Compur, Very Good.....	54.50
Retina I, F3.5, Chrome, with case, Very Good	31.50
Retina II, F2.8, Compur, Very Good.....	66.50
Wetli, Carl Zeiss, Tessar F2.8, Very Good	72.50
Wetli, Xenon F2, Very Good.....	75.00
Dollina II, Chrome, F2.9, Compur, Very Good	44.50
Dollina II, Chrome, F2, Xenon Compur, Very Good	59.50
Contax II, Carl Zeiss, F2.8, Good.....	59.50
Contax III, F2, with case, Very Good.....	135.00
Contax III, F1.5, with case, Very Good.....	175.00

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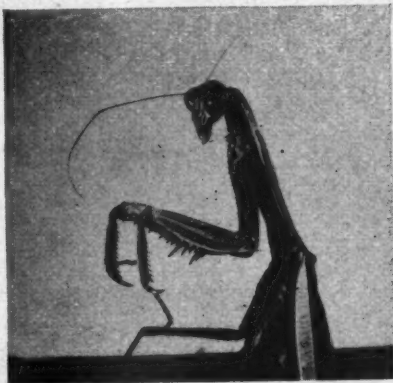
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Closeup Shots

Novel and interesting closeup and microscope photographs are being made with the Korelle Reflex camera. The single lens reflex design of this camera facilitates this closeup work in which an extension tube or a microscope adapter is used.

A number of special lenses are available for the Korelle Reflex. By means of a microscope adapter the camera may be coupled to a microscope.

The versatility of the Korelle Reflex entitles it to the slogan, "7 cameras in one." Distributor is Burke and James, Inc., 223 West Madison Street, Chicago, Illinois.



● The praying mantis, made with a Korelle Reflex camera using the normal 3 inch lens with a four inch extension tube.

Album Tab

"PHOTOMARK" is a cleverly designed item for the combined purpose of print mounting and indexing. Photomark is a stiff paper tag with gummed wings permitting easy and invisible pasting of all size prints into photo albums or on other surfaces. The tag provides space for entering data with normal ink or pencil instead of the white ink required on dark album paper. The artistic appearance of the prints is not marred by captions since the tag is hidden underneath the print and slides into full view by pulling a small tab. Proper attaching of prints without wrinkles is made easy. Photomark is always ready for use—no glue required. A product of Intercontinental Marketing Corp., New York City.

For Developing Dufaycolor

SI-MI X-Y Reversal Compound enables you to process Dufaycolor film without removing the film from the tank.

It is just as easy to develop color transparencies as black and white negatives. You can make positive color transparencies from Dufaycolor (roll, cut and pack film), in about 15 minutes with a tube of SI-MY X-Y Reversal Compound. All you need is a developing tank (or trays), Dufaycolor Developing Kit, and a tube of SI-MI X-Y Reversal Compound. Sells for 15c per tube.

Distributed by Raygram Corp., 425 Fourth Avenue, New York.

2 1/4 x 2 1/4" Projector

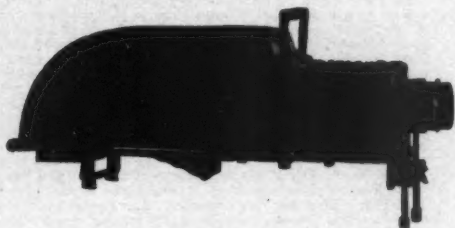
"DIAFANT MINI-PROJECTOR VIA," a new running mate of the line of Diafant Projection Apparatus, has been announced by Intercontinental Marketing Corporation, New York. The new model VIA is constructed for the use of transparencies of 2 1/4 x 2 1/4 inch size and is the only mini-projector of this kind on the American market at present.

Intercontinental also announces that the Diafant Model I is now available with a greater variety of lenses. Besides the Omar F/3.5-100 mm.—standard equipment, the following lenses are obtainable: Omar F/3.5, 120 mm focal length; Omar F/3.5, 150 mm focal length.

Spencer Slide Projector

A new color slide projector made by the Spencer Lens Co., Buffalo, N. Y., is a convertible instrument available for 2" x 2" slides only for 3 1/4" x 4" slides only for 2" x 2" and 3 1/4" x 4" slides.

The only difference is in the optical units which can be exchanged in a few seconds.



The projector is equipped with a 750-watt lamp, cooling fan, three-element condensing system and heat filter. Projection lenses range from 6 1/2" (f2.7) to 10" (f4.2). The machine weighs 21 pounds and measures 21 inches long, 7 1/2" wide and 8 3/4 inches high.

Additional information available from the Spencer Lens Co.

Miniature Photo Laboratories

MINIATURE PHOTO LABORATORIES CO., specialists in fine grain developing and commercial photography, have moved to larger quarters at 429-7th Avenue, near 34th Street, New York City. It is a handy address, opposite Pennsylvania Station.

Raygram Developing Kit

THE RAYGRAM NEGATIVE PROCESSING KIT for fine grain development consists of Ray-Del, a fine grain developer, Ray-Stop, a hardening short-stop, and Ray-Fix, an effective fixing bath that gives added brilliance to negatives. All three products are in powder form and are put up in handy double compartment containers complete with instructions and time and temperature chart.

The complete kit sells for \$1.50. Write to the Raygram Corporation, 425 Fourth Avenue, New York City, for literature.

Elkay Developing Reel

ELKAY PHOTO PRODUCTS announces an "extra" reel for roll film tanks, adjustable to all standard roll film sizes from 35 mm. to size 116. The reel will fit all standard developing tanks on the market today.

Called the Elkay Adjustable Roll Film Split-Second Reel, an outstanding feature is the ease and convenience with which the reel is loaded with film. It is even possible to load two lengths of film at once into the grooves "back to back," and so develop two rolls at once.

The new Elkay reel sells at \$1.00. This means that you can develop your pictures in half the time by actually doubling your effective equipment. With the new reel as an "extra" you can load one reel while the first is in the solution. To cut out all waste time, use one of the new enameled hypo trays, also put out by Elkay Photo Products.

For further information, see your dealer or write to Elkay Photo Products, 303 Washington Street, Newark, New Jersey.

Tetrazine

THE EDWAL LABORATORIES, INC., 732 Federal Street, Chicago, announce that the name of their product Nitrazine has been changed to TETRAZINE. Amateur and professional photographers use TETRAZINE with print developers to produce very dense blue-blacks. TETRAZINE is very effective for this purpose as it produces blue-blacks even on papers which ordinarily tend to give greenish tones. One ounce is sufficient for up to 40 gallons of developer.



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For the rich deep blacks and true gradations that you admire in Salon exhibits develop your pictures with

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LIOS-SCOP

*A Simple, Inexpensive,
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Lios-Scop is the only exposure meter of this type which shows the correct exposure time in its visual field, at a glance, and without prior or subsequent setting or calculation. The wide range of exposure times shown on the meter renders it suitable for use in dim interiors, under extreme light conditions and in artificial light. Lios-Scop may be used with either still or movie cameras—inside or outside. It is a handy size and easy to use. A precisely made accessory—yet well within the means of the average amateur.

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Flood Bulb
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YOU'LL find indoor snaps like this easy and inexpensive to make • with flood bulbs • when you use VICTOR Lighting Equipment. For free folder showing (and pricing) entire line of clamp-on, table and stand units, write J. H. Smith & Sons Corp., 339 Colfax St., Griffith, Ind.

VICTOR Photographic Lights

"Sorry, The Camera Moved!"

A familiar excuse, but not to Empire Tripod users. Strong . . . vibrationless . . . light . . . this firm support tilts your camera to a complete right angle . . . locks securely in any position. Sturdy 3-section tubular brass pull out to 62" telescope to 18" for easy carrying. Weighs just 29 ounces. Try it soon — you'll like the clever "new angle" it puts into your pictures!

Price \$6.00

At Your Dealer's or Direct From

MEDO

15 West 47th Street New York City

Argus Built-in Exposure Meter

TWO NEW ARGUS CAMERAS with a self-calculating built-in exposure meter, and a 20% price reduction in the original Model A Argus, have been announced by the International Research Corporation, Ann Arbor, Mich. It emphasizes that Argus cameras are "American made."

THE MODEL A2 ARGUS is described as having a "certified" F4.5 triple Anastigmat lens; 1/25 to 1/200 shutter speed, and uses 35 mm. film in daylight loading 18 or 36 exposure rolls. A new shutter release, which it is claimed involves less danger of camera movement when an exposure is being made than do other types of releases, and a larger and more easily-read front plate on the lens barrel, are additional features of the new models. The A2 is priced at \$12.50. The Model A2F Argus, priced at \$15.00, has a calibrated focusing mount on the lens barrel which facilitates focusing for distance. Specifications otherwise match those of the A2.

The original Model A Argus, which has been the world's largest selling miniature camera for the past three years, has now been reduced to the amazing low price of \$10.00. This was made possible through lowering of costs by mass production, the announcement states. All shutter speeds, lens and other specifications, will be unchanged.

New Photavit 1" x 1"

THE NEW PHOTAVIT CAMERA, weighing only 11¼ ounces, and only 4½x2 inches inside, is designed to be a perfect pocket camera. Using standard 35 mm. film in 20-exposure lengths, it utilizes the square 1"x1" format.

With a Primotar or Axinon f/3.5 lens, and a Compur shutter with speeds from 1 second to 1/300th, the price is \$40.50. With a Trioplan, Corygon or Trinar f/2.9 lens and Prontor II shutter (speeds 1 second to 1/175th), the price is \$32.50.

Features include a film safety catch to prevent double or accidental exposures, and an exposure counter. The 1.6 inch focal length lenses provide great depth of focus.

The new Photavit is distributed by Erich Student, 1002-4 Schofield Building, Cleveland, Ohio.

New Parvula Camera

A NEW COMPANION to the versatile Parvula miniature camera model C which appeared on this market a few months ago now comes forward in the Parvula A. This new Parvula incorporates the features of the model C, with the exception of the interchangeable back. Parvula A features the metal helical lens mount, the lever snap film winder, built-in supporting leg, metal ruby window covers, and a fine spring steel pressure plate. The view finder is self-erecting, and is etched with red cross lines as an aid in composition and leveling.

Parvula A makes 16 pictures, 1½x1¼ inches on a roll of vest pocket film. Three different models are available, each with outstanding lens and shutter equipment.

With F/3.5 Anastigmat lens, Compur Shutter . . . \$40.00.

With Zeiss Tessar F/3.5 lens, Compur Shutter . . . 50.00.

With F/2 Schneider Xenar, Compur Rpd Shter 75.00.

For further information see your dealer or write to Henry Herbert, 463 Fifth Avenue, New York City.

Thalhammer 1939 Catalog

THE THALHAMMER COMPANY, 1015 W. Second St., Los Angeles, California, announces a new 1939 Catalog, available on request.

Among the many new items are: The new Kino All-Angle Base for use with the Leica, Retina or Midget Marvel cameras, which permits the photographer to get any camera angle—vertical, horizontal or diagonal. List price of the Kino All-Angle Base for the Leica or Retina is \$8.50 and for the Midget Marvel, \$10.00.

The Kino Universal All-Angle Hinge is a sturdily constructed hinge that gives the photographer a smooth action for attaining any camera angle wanted. It is designed to fit all miniature cameras. List price is \$6.50.

The Kino Combination All-Angle Base for the Leica is a combination of a base which permits any camera angle, and a set of Kino Extension Rods and adjustable sunshade and filter holder. The complete combination is \$30.00. For the photographer who purchases one piece of camera equipment at a time, the Combination All-Angle Base is available by itself at \$12.50.

New Catalog

A NEW CATALOG IS OFFERED free by Wholesale Radio Service Co., Inc., 100 Sixth Avenue, New York City.

It covers cameras, movie cameras and projectors, photo accessories, chemicals, films, papers; in fact everything the amateur or professional photographer requires.

Copies of this catalog may be obtained by anyone dropping a postcard request addressed as above, or by personal call at any of the following branches of this concern: 901 W. Jackson Blvd., Chicago, Ill., 265 Peachtree Street, Atlanta, Ga., 110 Federal Street, Boston, Mass., 542 E. Fordham Road, Bronx, New York, 219 Central Avenue, Newark, N. J. and 90-08 166th St., Jamaica, L. I.

Ferrotyping

THE NEW TRUPHOTO KROMGLO, a cleaning fluid for chrome plates and ferrotyping tins, removes dirt, grease and finger marks from the metal and leaves it bright and lustrous. Kromglo is put up in 25¢-50¢ and \$1 sizes, by Truphoto Products Co., New York City.

New G. E. Studio Light



A most efficient studio lighting unit is the new G. E. 100-watt fluorescent lamp. Like the Cooper Hewitt lamp, this tubular light source furnishes a widely diffused light, ideally adapted for general studio lighting. The new fluorescent lamp is 50 per cent more efficient than the 100-watt type H. Mercury lamp which heretofore was the highest efficiency light source on the market.

The new G. E. 100-watt fluorescent lamp has a high light output and notable absence of glare.

Perutz Copy Film

INTERCONTINENTAL MARKETING Corporation, New York, announces a specialized emulsion called "Perutz Graphic Film B." It is designed for reproduction purposes and copy work to meet a definite demand of professionals as well as amateurs.

Perutz Graphic Film B has a very thin layer of emulsion, ultra fine grain, anti-halation, highest power of resolution, hard gradation. Its sensitivity is approximately 2-3 degrees Scheiner.

The new film is available in cans containing 17 feet of 35mm film. List price: \$1.50 each can.

Omag-Swiss Filter Kit

CINE FANS OWNING Bell & Howell, Keystone, Univex and other cameras now can obtain an Omag-Swiss special filter kit that will fit all standard lens mounts. The kit consists of a universal assortment of four Omag-Swiss solid optical glass filters.

Included is a yellow filter for cloud effects, a green filter for contrast, a red filter for dark skies, moonlight effects, etc., and a haze filter for use with Kodachrome emulsion.

The mount is of the sunshade type and screws directly into the lens barrel.

These kits are available for all F/3.5, F/2.7, and F/1.5 Wollensak lenses. In addition, there is a kit for the Bell and Howell F/2.5 Taylor, Taylor and Hobson lens. The list price of the complete kit is \$4.50. Information from your local dealer or Ches-United Company, Emmet Building, Madison Ave. at 29th Street, New York City.

(Continued on page 106)

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For the first time in his books, Mr. Mortensen describes his amazing method for print control, the Abrasion-Tone Process. At last, the photographer is enabled to alter or eliminate blemishes without resorting to negative retouching, thus opening to the minicam a long desired means of control. This valuable book carries the print from the wash-water to the salon wall, a critical but formerly neglected stage in the making of a print. Drying, flattening the print, straight-edging, trimming, signatures and titles are but a few of the subjects here discussed.

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By Marcel Natkin, D.Sc.

This book offers a complete system of portraiture, carrying the process in careful detail from the exposure to the retouching of the negative and print. Portraiture with miniature and studio cameras are considered; indoor and outdoor; with and without artificial light. Of particular interest is the appendix, in which the author shows by word and pictures in series just how one should pose two different models and manage the lighting. More than ninety important, explanatory illustrations.

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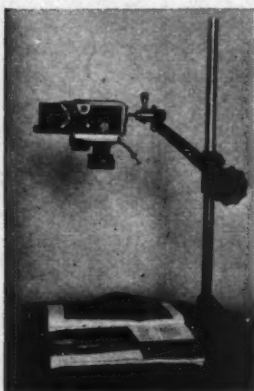
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An enlarger upright makes an excellent copying stand or table-top tripod.

The illustration shows a camera mounted by means of a tilting head which permits the camera to be adjusted to any angle.



The tilting top is fastened to the enlarger arm by means of one 1/4" by 1 1/4" machine screw.

The camera shown in the illustration is a Rolleiflex and the stand is from an Optikotechna Ideal enlarger. A supplementary lens naturally is

used on the camera lens for copying or close-ups.—*Edwin A. Weinberg.*

Darkroom Safelight in Fruit Jar

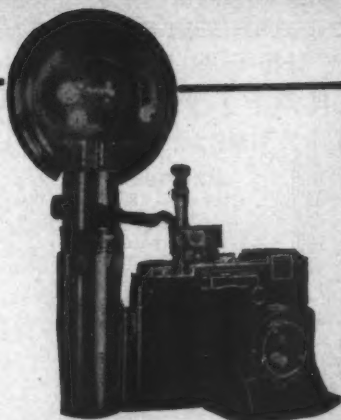
A pint fruit jar can be transformed into a safelight by covering it with colored cellophane and cutting a circular hole in its lid just large enough to receive a standard socket.

The metal lid is soft enough to be cut with a hand scroll saw. The yellow or orange cellophane is applied to the outside of the jar with mucilage or with a rubber band.



To test the safelight, lay the sensitized material, emulsion side up, on the table under the light and lay a coin on top of it. After five or ten minutes develop the film or paper. If the image of the coin does not show, the cellophane is safe. If it does, add another layer of cellophane or use a darker color, and test again.

Use dark yellow or amber cellophane for contact paper, dark red for orthochromatic



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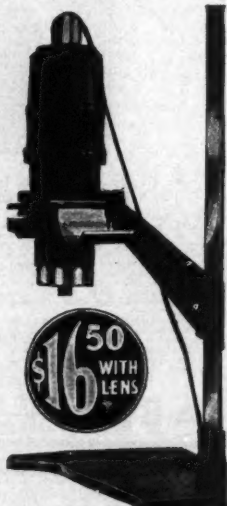
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The completed safelight can be hung from the ceiling or used with a desk lamp having a flexible neck, as shown in the photograph. Several jars may be used with the same lid for different work. Use a ten or 15 watt bulb in it.—Robert Scott.

"Automatic" Paper Holder

This frame has two features to speed up enlarging. It can be built for 8 x 10 prints, or any size desired, and has a capacity limited only by its depth.

Usually it is loaded with ten sheets of paper at a time, emulsion side up, and duplicate prints made as fast as they can be exposed and withdrawn. The light will not fog the sheets below.

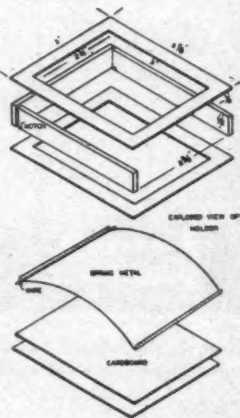
The second feature is the focusing side of the paper holder. A sheet of white paper in the reverse side of the frame is the same height as the sensitized paper in the front side. It is only necessary to flip the paper holder, focus, and then flip back to the sensitized side. A piece of Scotch tape on the easel insures that the paper holder returns to the same relative position.

When loaded with single weight paper, sheets of black paper may be inserted between to insure opacity when making long exposures.

The dimensions given in the sketch are for paper 2 1/2 x 3 3/4", the size obtained by cutting a sheet of 8 x 10 in thirds each way.

The holder consists simply of a mask on each side with a spring between holding two pieces of cardboard, and wood or metal may be used.

K. Hlynka



Scale For Enlarger

It is always desirable and sometimes necessary to know the number of times a negative has been enlarged. By attaching a pointer to the enlarger and a strip of wood against the wall back of the enlarger, as illustrated, you will be able to tell at a glance just what the degree of enlargement is.

The pointer is slipped between the split portion of the enlarger bracket where it clamps to the column. The bolt for clamping the

SALONS

Closing Date	Name of Salon	Number of prints and entry fee	For entry blank write to
March 14	San Francisco International Salon of Pictorial Photography	4 \$1.00	California Camera Club 45 Polk Street San Francisco, Calif.
March 30	1st Annual Salon of Pictorial Photography	4 1.00	Walter C. Graeff, Secretary Box 312 Lebanon, Pa.
April 19	5th Blossom Festival Salon of Photography	4 1.00	W. H. Mitchell 614 Broad Street St. Joseph, Mich.
April 21	3rd Annual National Photographic Salon for Women	4 1.00	Mrs. Doris W. Heller Miniature Camera Club of Philadelphia 17th and Sansom Streets Architects Building Philadelphia, Pa.
April 24	2nd National Memphis Salon of Photography	4 1.00	Brooks Memorial Art Gallery Overton Park Memphis, Tenn.
May 1	4th Anthracite Photographic Salon	4 1.00	Miss Elizabeth Taylor Everhart Museum Scranton, Pa.
May 17	8th International Detroit Salon of Photography	4 1.00	Exhibition Secretary Detroit Institute of Arts Detroit, Mich.
May 20	Newport Tercentenary First Annual Salon of Photography	4 1.00	J. L. Goodman P. M. C. A. Newport, Rhode Island

bracket fits through the hole in the pointer to keep it in place.

To find the number of times of enlargement, fix the pointer in position and use a razor blade to scratch two fine lines, exactly one inch apart, on an old overexposed negative. Put this nega-

tive in the enlarger and move the enlarger head up near its limit on the column. Secure sharp focus and measure the distance between these lines as projected on the easel. The number of inches they are apart is the magnification. For example, if they measure 10



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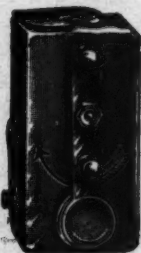
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inches apart on the easel, then the enlargement is exactly 10 times. Use this method to find by trial the height of the enlarger head for each degree of enlargement within the limits of your enlarger. Avoid positions giving fractions and mark the corresponding positions on the wood strip where indicated by the pointer.



For maximum effectiveness, each picture should be viewed from a certain distance. With the times of enlargement known, it is easy to find this distance. Simply multiply the times of enlargement by the focal length of the lens used in making the negative. Thus a 10 times enlargement from a miniature camera with a 2 inch lens should be viewed from a distance of 20 inches ($10 \times 2 = 20$).—C. Elmer Black.

Book Reviews

THE STORY OF A FACE, by Hillary G. Bailey, F. R. P. S., 127 pages. Illustrated with photographs and diagrams. 6 $\frac{3}{4}$ "x10". Camera Craft Publishing Co. Price \$2.50.

An individual approach to the subject of portraiture. Not a copy book list of do's and don'ts, but a fundamental approach to the subject. It is the result of the author's seeking for a "new developing solution that would develop me as well as the picture."

Chapter 1, "The Why of the Portrait Past and Present" lays down a foundation of principles. The chapter on lenses covers the subject from the oldest lens, a convex rock crystal that was used in Nineveh thousands of years ago, to the modern objective of today.

Other chapters include, "The Illusion of Depth", "Negative and Print Quality", "Composition", and "From Head to Foot", an excellent chapter on posing the portrait model.

PHOTOGRAPHIC CHEMICALS AND SOLUTIONS, by Crabtree and Matthews, 360 pages, over 90 photographic illustrations, also numerous diagrams. *American Photographic Publishing Co.* Price, \$4.00.

This book presents some of the knowledge acquired during the past 25 years in compounding photographic solutions in the research laboratories of the Eastman Kodak Company. This volume describes the fundamental problems of solution, preparation and use.

The appendix includes a formulary with the current Eastman formulas. There is a table of solubility of photographic chemicals, a list of manufacturers of apparatus and supplies, a temperature conversion table and an index of formulas by purpose.

THE EIGHTH ART, by Victor Keppler, 265 pages, 32 full page color illustrations. *Wm. Morrow and Co., Inc.* Price, \$10.00. DeLuxe edition with an original color photograph bound into each copy, \$12.50.

This handsome book not only is one of the most complete on the subject of color photography but also is a practical "how to do it" text book for amateur and expert alike.

"I've learned through trial and error," says Victor Keppler, "if I had a book about current methods and procedures to guide me, I could have saved at least five years of preliminary work. As it is, I believe that my book will save amateur and professional photographers years of discouraging experimentation that I was forced to do to say nothing of thousands of dollars in actual money."

Any photographer who can make a black and white can make a color print on paper, says Mr. Keppler. How to do this—specifically, practically, and inexpensively—he tells in this book.

THE MINIATURE CAMERA DIARY, 1939, compiled by Gordon S. Malthouse, 274 pages, numerous tables, formulas, etc. *Miniature Camera World*, London. Price in Great Britain, 2/6.

THE AMATEUR CINEMATOGRAPHER'S DIARY, 1939, compiled by Gordon S. Malthouse, 288 pages, numerous tables, formulas, etc. *Miniature Camera World*, London. Price in Great Britain, 2/6.

These two handy and handsome vest pocket books are more than diaries. Each is a complete photographic manual in miniature.

The *Miniature Camera Diary* contains data on developing, printing, papers, filters, film, speeds, lenses, etc. Each includes a 16-page sectional colored map of the British Isles of especial value to prospective travelers.

The *Amateur Cinematographer's Diary* includes exposure charts, processing data, full list of projectors, editing, titling, trick effects, and Continental customs regulations.

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★ Judges, National Camera Salon

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MONOBATH is a combination fixer-developer which aims to revolutionize film development processes. Time and temperature, the very critical factors in conventional film development, are brought under control by the new process. The solution may be used at any temperature from 70 to 80 degrees and development time is not critical because the solution is designed to start fixing automatically as each part of the emulsion becomes sufficiently developed.

Monobath is offered in several contrast controls. The desired contrast is obtained—not by varying developing time as with conventional developers—but by selecting a solution of desired characteristics.

The three types offered are:

Contact Type: High gamma, M-Q base, standard grain.

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Mural type: Low gamma, p-phenylenediamine, very fine grain.

Monobath is produced by Pratt Laboratories, South Norwalk, Conn.

Stereo Pictures With Any Camera

Stereoscopic pictures, in the past, had to be made with special, stereoscopic cameras, comprising two lenses and shutters.

STEREOTACH makes it possible to take instantaneous three-dimension pictures with any camera. It is used in front of the lens, and takes two pictures instantly on a single film. The apertures of the device have a separation of two and three quarter inches, which is the approximate distance between the human eyes.

Negatives are developed and printed as usual.

The price of the Stereotach, including a stereo viewer is \$11.75.

A booklet describing the use of the Stereotach will be sent free on request. Write the Commonwealth Mfg. Co., 4206 Davis Lane, Cincinnati, Ohio.

Cine Splicer

THE MONTAUK SPLICER for motion picture film, either 8 mm. or 16 mm., is now available through G. Gennert, Inc., 20 West 22nd Street, New York City.

Pressing a button on the front of the splicer press opens a cutting knife, scraper rules, film gauge and pressure plate. The film is inserted gelatin surface up and readily cut or cemented in the usual manner. The pressure plate is applied for half a minute and this completes the clean and efficient joint.

8 mm. or 16 mm. Press with scraper knife, \$2.75. For further information, write Gennert.

Eumig Electric 8 mm.

THE EUMIG C4 is driven by an electric motor, power for which is supplied by a standard 20 cent flashlight battery. One battery, the makers claim, will expose at least 10 double-run 8 mm. rolls before requiring replacement.

The camera is in box form, measuring $4\frac{1}{4}$ " x $4\frac{1}{4}$ " x $2\frac{1}{2}$ " inches. Complete with battery it weighs only 22 oz. Takes standard double 8 mm. film with Berphot anastigmat lens, f/2.5, 12.5 mm. focal length, price is \$35.

The Eumig has but one operating speed, 16 frames per second. A locking catch directly below the lens prevents accidental operation.

Distributors are Wholesale Camera Supply Co., 122 East Seventh Street, Los Angeles, California.

Wesco Fadette

THE WESCO FADETTE is designed to fit all cameras, with lens collars from five eighths inch to one inch outside diameter such as Bell and Howell, Keystone and others; either 8 mm or 16 mm. A tripod is not necessary as the Fadette is operated by an ordinary cable release.

It can be used as a combination filter holder and sunshade. Supplementary lenses may also be used at the same time for titles or portraiture. It will take unmounted filters of 25 mm. diameter.

The fade produced is oblong. The frame size becomes smaller as it fades. At your dealer's or Western Movie Supply, 254 Sutter St., San Francisco.

??? QUESTIONS ??? to the Editor

Q. What are the differences in paper surfaces?

Ans. Paper surfaces are designated as glossy, semi-matte, smooth matte, and rough matte. Choice depends on the subject matter of the picture. Glossy is used chiefly for purposes of reproduction or when a maximum of minute detail is to be reproduced. Glossy surfaces are ferrotyped. When a glossy is dried without ferrotyping, the resulting surface is like that of semi-matte. The latter has a slight sheen. A Smooth matte surface has no sheen. Smooth matte and semi-matte often are used for reproduction. Rough matte paper is used for subjects such as portraits in which fine detail is not wanted.

Q. I have heard that silver can be recovered from used fixing solutions. How is this done?

Ans. Commercial finishers and large processing plants like the Hollywood movie establishments recover thousands of dollars worth of silver from exhausted hypo baths. For amateur photographers and even studio operators, the quantity of film used is relatively small and it is not practical to attempt to save hypo or recover dissolved silver.

Q. What is the difference between an X2 filter and a 2X filter?

Ans. Each filter manufacturer has his own designations, usually by letter, such as "G", "K", "X", etc. When a number follows one of these letters, it indicates only a difference in density. "K1" and "K2" filters are both yellow but the latter is the denser of the two.

Filters once were named according to the amount of exposure increase required. A "2 times" filter then was one which necessitated doubling exposure. Thus filters were called 2X, 3X, 4X, etc. This sort of classification no longer is accurate as the amount of exposure increase varies with the film used.

Q. What is the best temperature for developing prints?

Ans. The standard temperature for print developers is 70° F., but this temperature is not as critical as in the development of negatives, and any temperature between 65 and 80 degrees may be used. But it must be kept constant; lowered temperature requires increased exposure time and also yields prints with colder tones.

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THE BIG PHOTOGRAPHIC NEWS OF 1939

Density Control

ANNOUNCING MONOBATH

AFTER almost five years of continuous research this unique chemical compound, about which there have been so many rumors, will soon be ready for wide-spread distribution.

MONOBATH is not only the first stable single-bath fixer-developer—it is the first tested and proved *density control* photographic developer.

Built into this patented solution is an automatic chemical time cycle. When negatives processed in MONOBATH have developed to full tonal value, *development ceases and fixing begins!* From that instant on no further action takes place to spoil negatives. Graininess cannot increase with over-development. Over-development is impossible with MONOBATH.

With this amazing new system, no clock or thermometer is needed. Rich, full-toned negatives every time, whether the temperature of the bath is 70° or 80° F. and whether the film is left in the bath an hour or over night.

All negatives emerging from any one of the three types

of MONOBATH are of practically the same gamma regardless of time or temperature. The photographer is now granted a more complete *density control* than could formerly be obtained with the most elaborate laboratory operation using the customary two-bath developer and fixer system with controlled time and temperature.

Thus a new and positive uniformity is possible that insures proper negative standards and eliminates annoying failures. The user has only to choose one of the three MONOBATH types, depending upon whether low, medium or high gamma negatives are wanted. From there on the only photographic variants are the brightness range of the subject and, of course, the exposure.

In test territories users have been amazed with the results, dealers besieged. This "photographic-revolution-in-a-bottle" creates a furor wherever introduced. Skeptics want to challenge MONOBATH to work this photo-chemical miracle in their own dark-rooms. They come to scoff and remain to praise!

Definitely *density control* is the big photographic news of 1939.

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The Moving CAMERA

*"Pan only while following a moving object,"
is a good general rule, but do not let it close
the door to the other possibilities of the
most effective device in cinematography*

By SIDNEY A. DIAMOND

THE cine camera may be moved (1) on a stationary axis (2) through space. The first category includes the various *pan* shots in which the camera pivots horizontally, vertically, or in any direction with the cameraman's body or tripod as a center. The second group includes the various types of *travel* and *boom* shots.

When an amateur first starts filming, he is likely to *pan* excessively, forgetting that the motion in a motion picture is supposed to be primarily of the subject rather than of the camera. Then, he probably runs across a statement that panning is a characteristic sin of the rank novice. He then never permits the camera to move while filming.

In panning constantly, one does with the camera what he quite naturally does with his eyes. Imagine our typical novice out on a trip to some scenic country. He stops to gaze at a spectacle of nature. His eyes immediately pick out a point of interest, rest there for a moment, and then his gaze suddenly is diverted. He looks to the right, swings clear around to the left, and finally comes back to fix in his mind a detail

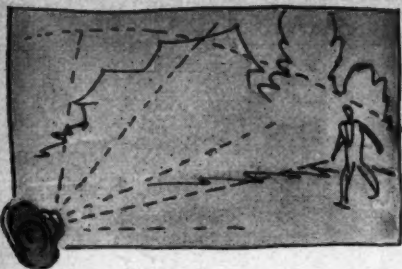
which attracts him. Then he takes out his movie camera and sprays the scene in similar fashion.

Why not use a camera as we use our eyes?—Anyone who has seen such a sequence understands what is wrong. It causes eye-strain and mental fatigue because of the unpredictability of the movement. Someone else's ideas are being violently impressed on the eyes and brains of the audience. Because of the clearly defined edges of the frame, the camera has no "tail" to its vision as has the human eye.

Spraying with the camera like a garden hose violates the three basic rules: (1) pan slowly; (2) pan at a constant speed;



● Swinging the camera on a horizontal axis provides only the most elemental form of panorama shot.
Fig. 1



- The first category of camera movements comprises the pan shots in which the camera pivots on a stationary axis. The cine camera may pan horizontally, vertically, or in any direction.

Fig. 2



(3) pan in only one direction in any one given scene. In addition, it also is likely to violate the rule for all camera work against camera vibration.

The third rule does not mean that a pan must be either just horizontal or just vertical—a pan can be made in an oblique or curved line. No point in space, however, may appear for a *second* time in the same shot. When a pan is horizontal, it should be from left to right. As the result of reading, this is the natural direction for our eye movement.

To help keep a pan within the rules is to use a tripod with a tilting and swinging head.

Our problem thus far has been scenery. It is an apt one not only because scenery is a typical victim for spraying, but also because it is one of the types of material which should be filmed *without* the use of the pan. Either by using lenses of different focal lengths, or by changing the position of the camera, and preferably by a combination of the two, the audience should first be introduced to the entire expanse by means of a long shot, and then made to concentrate on salient details by means of closer shots.

This order may be reversed where the long shot is the most impressive. Sometimes it will happen that nature has arranged things so that the photographer will be unable to find a vantage point

from which he can include the entire scene, and in such a situation, a pan may be resorted to.

An important use of the pan is for dramatic accents. Consider, for example, the familiar home comedy shot, showing little Johnny doing something strictly forbidden, such as raiding the jam jar. As he continues to enjoy himself, the camera pans to bring into the frame the stern figure of Mother, who has been standing there watching her oblivious offspring earn himself a good spanking. (Fig. 4.) Heavy melodrama as well as comedy may be lurking just beyond the limits of the camera's field, and introduced in the same fashion.

The pan is most useful when it is following moving objects as in the filming of a sporting event. Then: (1) keep the movement of the camera as smooth as possible, (2) maintain proper composition.

Keep the central point of the action in the same relative position from frame to frame, but not quite in the middle of the rectangle. As in still pictures, additional



- A dolly may be improvised for travel shots in which the camera follows subjects walking, running, etc.

Fig. 3



● Panning for dramatic accent. A medium shot of naughty Johnny at the jam jar employs a pan to bring into the frame the figure of the irate parent, willow switch in hand. Fig. 4



space should be left on the side toward which the movement in the scene is progressing, so that the audience will not get the impression that the action is about to disappear past the border of the screen.

It is with some of the less spectacular uses of the pan that the travel and boom shot comes in. A shot of two walking persons is more effective if the camera *moves* with them than if it *turns* with them. The characters can be kept the same relative size. And the shot of Johnny and his mother has a stronger effect if the camera swings up and back on a boom to enlarge the field of view than if it simply pans.

The elaborate cranes used in professional studios to swing a camera high in the air, follow someone down a flight of stairs, or the like, are among the most expensive pieces of equipment Hollywood employs. A dolly for a travel or *truck* shot, however, is available in designs to fit amateur tripods, or one can be home-made. To insure smooth motion, use large wheels. Pneumatic-tired baby carriage wheels are excellent. Build a plank framework between the wheels, and gouge out sockets to hold the tripod legs. To make the camera more secure, provision can be made to screw down each tripod leg.

When using a dolly, it is almost essential to rehearse the movement of the camera together with the movement of the actors. All obstructions must be cleared out of the way so that the truck will travel smoothly. Professional cameramen usually lay tracks for their dolly shots by placing

lengths of plank along the camera route.

Walking along with the camera held in the hands simply will not do; the human body is not constructed for smooth locomotion.

By all means **MOVE** the camera on every occasion that there is a good reason for doing so, but plan the **MOVING CAMERA** shots in advance.

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TROUBLE-SHOOTING

Cine film processing check for home reversal

By WILLIAM L. MORGAN

LACKING the equipment and experience of the professional cine film establishment, the amateur may not get uniformly consistent results at all times. The following provides a check list of familiar problems:

Film is too dense—will not project. The film was underexposed or the first development was not long enough. When in doubt, always over-expose positive film. A dense film can be reduced in Farmer's Reducing Solution.

Solution A	
Water	1 ounce
Potassium Ferricyanide.....	15 grains

Solution B	
Water	32 ounces
Hypo	1 ounce

Add one ounce of Solution A to two ounces of Solution B. Add water to make two quarts. Watch reducing closely. Clear in a hypo solution or fresh acid fixing bath to remove yellow stain. Wash thoroughly.

The film can also be reduced after reversal and before the second development. Use hypo only, 100 grains to two quarts of water. When highlights become clear, wash it and put it through the second development.

Film has chalky streaks. The second development was not carried to completion. If it has been used for previous films, the developer may be exhausted. For best results, change developer for each 100 feet of 16mm. film.

Film is stained yellow. Film was not thoroughly washed after reversal or clearing bath is exhausted. Use a new reversal solution and a new clearing bath every 3 or 4 developings.

The use of a blue or purple backed film, obtainable in most makes of positive, will counteract the tendency for a brownish cast and will make the film project a clear white.

Film is spotted. Watermarks can be removed from the back of the film with car-

EXPOSURE TABLE

The following exposure table may be used as a preliminary guide when using positive film. However, you should make your own tests as soon as possible with the film you select.

Bright Dull
Clear Cloudy Cloudy

(16 frames per second)

- I. Beach, snow, distance, airplane, seascapes, clouds (without filter) f6.3 f4.5 f3.5
- II. Semi-close shots, near-landscapes, some sky.. f4.5 f3.5 f2
- III. Street scenes, close-ups, dark-colored buildings. f3.5 f2 f1.5

When in doubt, overexpose rather than underexpose. It is not practical to take pictures indoors with positive film or to take subjects in deep shade.

The disadvantage of positive film is that it is slow. For other and faster films suitable for home processing, see the list below on this page.

bon tetra-chloride. Black specks are caused by little pieces of the emulsion coming off the edges when sponged in warm weather. If it was necessary to wash film in water over 70° do not sponge the emulsion. Be sure to dry the film in a dust-free room.

Edges of the film are unevenly developed. This occurs if the film has been allowed to over-lap. Keep the rubber bands at either end of the film stretched tightly. The staples which separate the film on the drum should be spaced wide enough to allow the film to slip freely when stretching.

Film is grainy. Positive film is naturally fine-grained, so you should have no grain-trouble with it. An appearance of grain is often caused by little bubbles from the action of the acid in the reversal solution on the carbonate of the developer, therefore be sure to rinse thoroughly between each step.

Film is checked or "reticulated". A

change in temperature anywhere in the process may cause this annoying blemish to your film. All solutions should be as close to 65° as possible, including the wash water. For best results the air temperature should be the same. If it is necessary to wash film in water warmer than 70°, keep all solutions within 1° of each other. A tropical developer should be used at warm temperatures. In no case should the room temperature be more than 75°. Use a hardener.

Drying spots on film. The same care that is accorded miniature negative material should be given to the drying of motion picture films.

Wind the film on the drying rack, wiping it between two pieces of wet viscose sponge to remove excess moisture. Remove one of the small dowels in the rack to give plenty of slack, as the film tightens when drying. Be careful not to scratch the wet emulsion. The film should dry in a place free from dust. Be sure the

emulsion is thoroughly dry before winding it on the projector spool.



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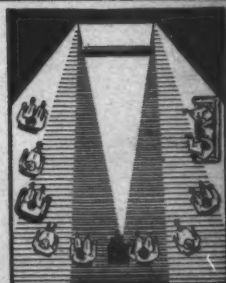
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ANNOUNCING

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One hundred dollars, first prize; \$50, second prize; \$25, third prize. Fifteen prizes of \$10 each and thirty-five prizes of \$5 each. In addition, non-prize-winning entries selected for editorial use will be paid for at the rate of \$5 to \$10 each.

Here are the rules:

Any make or size of camera may be used.

Prints may be 5" x 7" or larger, mounted or unmounted. Do not send negatives.

Give complete data on each print: Photographer's name and address, camera used, film, shutter speed, lens aperture and filter, if any.

State whether prints have been reproduced in other publications and if so, when and where they were previously sold or reproduced.

Include postage if return of the prints is desired. MINICAM will give meticulous attention to every entry, but assumes no responsibility for prints lost.

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4. **Releases:** A primary condition is that all contestants have full reproduction rights—especially the consent of people appearing in the pictures. In other words, the sponsors decline all liability on claims by third parties and it is assumed that the photographer has releases signed by models or subjects.
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